

## SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

SDS018

Version 7.0

Print Date 2017/06/21

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MSDS code: MYYY770

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name : HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$   
Substance name : hydrogen peroxide solution  
Index-No. : 008-003-00-9  
CAS-No. : 7722-84-1  
EC-No. : 231-765-0  
EU REACH-Reg. No. : 01-2119485845-22-xxxx

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Use of the Substance/Mixture : Identified use: See table in front of appendix for a complete overview of identified uses.  
Uses advised against : At this moment we have not identified any uses advised against  
Remarks : Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to the product grade

**1.3. Details of the supplier of the safety data sheet**

Company : Brenntag UK Limited  
Alpha House, Lawnswood Business Park  
GB LS16 6QY Leeds  
Telephone : +44 (0) 113 3879 200  
Telefax : +44 (0) 113 3879 280  
E-mail address : msds@brenntag.co.uk

**1.4. Emergency telephone number**

Emergency telephone number : Emergency only telephone number (open 24 hours):  
+44 (0) 1865 407333 (N.C.E.C. Culham)

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008

**REGULATION (EC) No 1272/2008**

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

Hazard class	Hazard category	Target Organs	Hazard statements
Serious eye damage	Category 1	---	H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Most important adverse effects**

Human Health : See section 11 for toxicological information.

Physical and chemical hazards : See section 9/10 for physicochemical information.

Potential environmental effects : See section 12 for environmental information.

**2.2. Label elements****Labelling according to Regulation (EC) No 1272/2008**

Hazard symbols : 

Signal word : Danger

Hazard statements : H318 Causes serious eye damage.

Precautionary statements

Prevention : P280 Wear eye protection/ face protection.

Response : P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

**Additional Labelling:**

Acquisition, possession or use by the general public is restricted.

**Hazardous components which must be listed on the label:**

- hydrogen peroxide solution

**2.3. Other hazards**

For Results of PBT and vPvB assessment see section 12.5.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Chemical nature : Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
<b>hydrogen peroxide solution</b>			
Index-No. : 008-003-00-9	$\geq 8$ - $< 20$	Ox. Liq.1	H271
CAS-No. : 7722-84-1		Acute Tox.4	H332
EC-No. : 231-765-0		Acute Tox.4	H302
EU REACH- : 01-2119485845-22-xxxx		Skin Corr.1A	H314
Reg. No.		Eye Dam.1	H318
		STOT SE3	H335
		Aquatic Chronic3	H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

- General advice : Take off all contaminated clothing immediately. If symptoms occur, call a physician.
- If inhaled : Remove to fresh air. If symptoms persist, call a physician.
- In case of skin contact : Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
- If swallowed : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

#### 4.2. Most important symptoms and effects, both acute and delayed

- Symptoms : See Section 11 for more detailed information on health effects and symptoms.
- Effects : See Section 11 for more detailed information on health effects and symptoms.

#### 4.3. Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** **SECTION 5: Firefighting measures****5.1. Extinguishing media**

- Suitable extinguishing media : water spray
- Unsuitable extinguishing media : High volume water jet, Carbon dioxide (CO<sub>2</sub>)

**5.2. Special hazards arising from the substance or mixture**

- Specific hazards during firefighting : The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**5.3. Advice for firefighters**

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Wear personal protective equipment.
- Further advice : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Cool closed containers exposed to fire with water spray.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

- Personal precautions : Use personal protective equipment. Keep away unprotected persons. Ensure adequate ventilation. Avoid contact with skin and eyes. Do not breathe vapours or spray mist.

**6.2. Environmental precautions**

- Environmental precautions : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

**6.3. Methods and materials for containment and cleaning up**

- Methods and materials for containment and cleaning up : Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal.
- Further information : Treat recovered material as described in the section "Disposal considerations".

**6.4. Reference to other sections**

- See Section 1 for emergency contact information.
- See Section 8 for information on personal protective equipment.
- See Section 13 for waste treatment information.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Advice on safe handling : Keep container tightly closed. Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
- Hygiene measures : Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Store in original container. Keep away from direct sunlight. Suitable materials for containers: Stainless steel; PTFE; polyethylene; Unsuitable materials for containers: Copper; Aluminium; Zinc; Iron
- Advice on protection against fire and explosion : The product is not flammable. Normal measures for preventive fire protection.
- Further information on storage conditions : Keep tightly closed in a dry and cool place.
- Advice on common storage : Keep away from food, drink and animal feedingstuffs. Keep away from combustible material.

#### 7.3. Specific end use(s)

- Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

<b>Component:</b>	<b>hydrogen peroxide solution</b>	<b>CAS-No. 7722-84-1</b>
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<b>Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)</b>		
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- DNEL  
Workers, Acute - local effects, Inhalation : 3 mg/m<sup>3</sup>
- DNEL  
Workers, Long-term - local effects, Inhalation : 1.4 mg/m<sup>3</sup>

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

DNEL		
Consumers, Acute - local effects, Inhalation	:	1.93 mg/m <sup>3</sup>
DNEL		
Consumers, Long-term - local effects, Inhalation	:	0.21 mg/m <sup>3</sup>

### Predicted No Effect Concentration (PNEC)

Fresh water	:	0.0126 mg/l
Marine water	:	0.0126 mg/l
Intermittent releases	:	0.0138 mg/l
Sewage treatment plant (STP)	:	4.66 mg/l
Fresh water sediment	:	0.047 mg/kg dry weight (d.w.)
Marine sediment	:	0.047 mg/kg dry weight (d.w.)
Soil	:	0.0023 mg/kg dry weight (d.w.)

### Other Occupational Exposure Limit Values

UK. EH40 Workplace Exposure Limits (WELs), Short Term Exposure Limit (STEL):  
2 ppm, 2.8 mg/m<sup>3</sup>

UK. EH40 Workplace Exposure Limits (WELs), Time Weighted Average (TWA):  
1 ppm, 1.4 mg/m<sup>3</sup>

ELV (IE), Time Weighted Average (TWA):  
1 ppm, 1.5 mg/m<sup>3</sup>

ELV (IE), Short Term Exposure Limit (STEL):  
2 ppm, 3 mg/m<sup>3</sup>

## 8.2. Exposure controls

### Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

### Personal protective equipment

*Respiratory protection*

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

Advice : Required, if exposure limit is exceeded (e.g. OEL).  
Respiratory protection complying with EN 141.  
Recommended Filter type:  
Combination filter: B-P2  
ABEK-filter

*Hand protection*

Advice : Protective gloves complying with EN 374.  
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.  
Protective gloves should be replaced at first signs of wear.

Material : Natural Rubber  
Break through time :  $\geq 8$  h  
Glove thickness : 0.5 mm

Material : polychloroprene  
Break through time :  $\geq 8$  h  
Glove thickness : 0.5 mm

Material : Nitrile rubber  
Break through time :  $\geq 8$  h  
Glove thickness : 0.35 mm

Material : butyl-rubber  
Break through time :  $\geq 8$  h  
Glove thickness : 0.5 mm

Material : Fluorinated rubber  
Break through time :  $\geq 8$  h  
Glove thickness : 0.4 mm

Material : Polyvinylchloride  
Break through time :  $\geq 8$  h  
Glove thickness : 0.5 mm

*Eye protection*

Advice : Goggles giving complete protection to the eyes

*Skin and body protection*

Advice : Protective work clothing

**Environmental exposure controls**

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

General advice : Do not flush into surface water or sanitary sewer system.  
 Avoid subsoil penetration.  
 If the product contaminates rivers and lakes or drains inform respective authorities.  
 If material reaches soil inform authorities responsible for such cases.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Form	:	liquid
Colour	:	colourless
Odour	:	pungent
Odour Threshold	:	Not applicable
pH	:	2 - 3 ( 20 °C)
Freezing point/range	:	-10 °C -6 °C 10% solution -13 °C 18% solution
Boiling point/boiling range	:	102 °C 103 °C 18% solution
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	22 hPa (20 °C) 10% Solution 20 hPa (20 °C) 18% solution
Relative vapour density	:	no data available
Density	:	1.035 g/cm <sup>3</sup> (20 °C) 10% solution 1.07 g/cm <sup>3</sup> (20 °C) 20% solution
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	log Kow -1.57 (20 °C) (calculated)
Auto-ignition temperature	:	Not applicable

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

Thermal decomposition	:	To avoid thermal decomposition, do not overheat.
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Explosive properties	:	EU legislation: Not explosive
Explosivity	:	Product is not explosive.
Oxidizing properties	:	Oxidizing agents

**9.2. Other information**

No further information available.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Advice : Reacts with copper, aluminum, zinc and their alloys.

**10.2. Chemical stability**

Advice : Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

Hazardous reactions : Gives off hydrogen by reaction with metals.

**10.4. Conditions to avoid**

Conditions to avoid : Heat, flames and sparks. Keep away from direct sunlight. Avoid dust formation.

Thermal decomposition : To avoid thermal decomposition, do not overheat.

**10.5. Incompatible materials**

Materials to avoid : Keep away from combustible material. Organic materials, Keep away from strong oxidizing agents and strong reducing agents. Copper, Aluminium, Zinc, Iron, Acetone, alkalis, Bases, Metal oxides

**10.6. Hazardous decomposition products**

Hazardous decomposition products : Oxygen

**SECTION 11: Toxicological information****11.1. Information on toxicological effects**

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 
**Data for the product**
**Acute toxicity**
**Oral**

Acute toxicity estimate : > 2000 mg/kg ) (Calculation method) Not classified based on the calculation method according to CLP regulation.

**Inhalation**

no data available

**Dermal**

Acute toxicity estimate : 10055.3 - 25012.5 mg/kg ) Not classified based on the calculation method according to CLP regulation.

**Irritation**
**Skin**

Result : Not classified based on the calculation method according to CLP regulation.

**Eyes**

Result : Classified based on the calculation method according to CLP regulation.

**Sensitisation**

Result : Not classified based on the calculation method according to CLP regulation.

**CMR effects**
**CMR Properties**

Carcinogenicity : Not classified based on the calculation method according to CLP regulation.

Mutagenicity : Not classified based on the calculation method according to CLP regulation.

Teratogenicity : Not classified based on the calculation method according to CLP regulation.

Reproductive toxicity : Not classified based on the calculation method according to CLP regulation.

**Specific Target Organ Toxicity**
**Single exposure**

Remarks : Not classified based on the calculation method according to CLP regulation.

**Repeated exposure**

Remarks : Not classified based on the calculation method according to CLP regulation.

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 
**Other toxic properties**
**Repeated dose toxicity**

no data available

**Aspiration hazard**

Not applicable,

<b>Component:</b>	<b>hydrogen peroxide solution</b>	<b>CAS-No. 7722-84-1</b>
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**Acute toxicity**
**Oral**

- |           |   |  |
|-----------|---|--|
| LD50 Oral | : | 418 mg/kg (Rat, male) (US-EPA method)The toxicological value for the pure substance was calculated on basis of a value for an aqueous solution.            |
| LD50 Oral | : | 445 mg/kg (Rat, female) (US-EPA method)The toxicological value for the pure substance was calculated on basis of a value for an aqueous solution.          |
| LD50 Oral | : | 431 mg/kg (Rat, male and female) (US-EPA method)The toxicological value for the pure substance was calculated on basis of a value for an aqueous solution. |

**Inhalation**

No valid data available.

**Dermal**

- |      |   |  |
|------|---|--|
| LD50 | : | > 2000 mg/kg (Rabbit) The toxicological value for the pure substance was calculated on basis of a value for an aqueous solution. |
|------|---|--|

**Irritation**
**Skin**

- |        |   |                            |
|--------|---|----------------------------|
| Result | : | corrosive effects (Rabbit) |
|--------|---|----------------------------|

**Eyes**

- |        |   |                                     |
|--------|---|-------------------------------------|
| Result | : | Causes serious eye damage. (Rabbit) |
|--------|---|-------------------------------------|

**Sensitisation**

- |        |   |   |
|--------|---|---|
| Result | : | not sensitizing (Magnusson & Kligman; Guinea pig) |
|--------|---|---|

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 
**CMR effects**
**CMR Properties**

Carcinogenicity	:	Not classified due to inconclusive data.
Mutagenicity	:	In vitro tests showed mutagenic effects In vivo tests did not show mutagenic effects
Teratogenicity	:	no data available
Reproductive toxicity	:	Not classified due to lack of data.

**Genotoxicity in vitro**

Result	:	positive (Chromosome aberration test in vitro; In vitro gene mutation study in mammalian cells; no) (OECD Test Guideline 473) positive (In vitro gene mutation study in mammalian cells; no) (OECD Test Guideline 476) Positive as well as negative results were obtained. (Mutagenicity (Escherichia coli - reverse mutation assay); with and without metabolic activation)
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**Genotoxicity in vivo**

Result	:	negative (In vivo micronucleus test; Mouse) (Test substance: Hydrogen peroxide solution (35%); intraperitoneal; ) (OECD Test Guideline 474)
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**Specific Target Organ Toxicity**
**Single exposure**

Inhalation	:	Target Organs: Respiratory system May cause respiratory irritation.
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**Repeated exposure**

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
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**Other toxic properties**
**Repeated dose toxicity**

NOEL	:	37 mg/kg (Mouse, female; Test substance: Hydrogen peroxide solution (35%))(Oral; 90 d; Subsequent observation period 6 weeks) (OECD Test Guideline 408)Target Organs: Blood; Symptoms: Depression of body weight, Irritation, Gastrointestinal tract
NOEL	:	26 mg/kg (Mouse, male; Test substance: Hydrogen peroxide solution (35%))(Oral; 90 d; Subsequent observation period 6 weeks)

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

(OECD Test Guideline 408) Target Organs: Blood; Symptoms: Depression of body weight, Irritation, Gastrointestinal tract

### Aspiration hazard

No aspiration toxicity classification,

## SECTION 12: Ecological information

### 12.1. Toxicity

<b>Component:</b>	<b>hydrogen peroxide solution</b>	<b>CAS-No. 7722-84-1</b>
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#### Acute toxicity

##### Fish

LC50 : 16.4 mg/l (Pimephales promelas; 96 h) (semi-static test)

#### Toxicity to daphnia and other aquatic invertebrates

EC50 : 2.4 mg/l (Daphnia pulex (Water flea); 48 h) (semi-static test)

##### algae

NOEC : 0.63 mg/l (Skeletonema costatum (marine diatom); 72 h) (static test; End point: Growth rate)

ErC50 : 1.38 mg/l (Skeletonema costatum (marine diatom); 72 h) (End point: Growth rate)

##### Bacteria

EC50 : > 1000 mg/l (activated sludge; 3 h) (static test; OECD Test Guideline 209)

EC50 : 466 mg/l (activated sludge; 30 min) (OECD Test Guideline 209)

#### Chronic toxicity

##### Aquatic invertebrates

NOEC : 0.63 mg/l (Daphnia magna (Water flea); 21 d)

### 12.2. Persistence and degradability

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

<b>Component:</b>	hydrogen peroxide solution	CAS-No. 7722-84-1
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**Persistence and degradability****Persistence**

Result : (Related to: Air) The product can be degraded by abiotic (e.g. chemical or photolytic) processes.  
Decomposition under release of oxygen.

**Biodegradability**

Result : 100 % (Related to: O<sub>2</sub> consumption; Test substance: 30% solution)(OECD)Readily biodegradable.

**12.3. Bioaccumulative potential**

<b>Component:</b>	hydrogen peroxide solution	CAS-No. 7722-84-1
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**Bioaccumulation**

Result : log Kow -1.57 (20 °C)  
: Does not bioaccumulate.

**12.4. Mobility in soil**

<b>Component:</b>	hydrogen peroxide solution	CAS-No. 7722-84-1
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**Mobility**

Water : The product is mobile in water environment.  
Soil : Not expected to adsorb on soil.  
Air : not volatile

**12.5. Results of PBT and vPvB assessment**

<b>Component:</b>	hydrogen peroxide solution	CAS-No. 7722-84-1
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**Results of PBT and vPvB assessment**

Result : The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

**12.6. Other adverse effects****Data for the product****Additional ecological information**

Result : Do not flush into surface water or sanitary sewer system.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

Avoid subsoil penetration.

<b>Component:</b>	<b>hydrogen peroxide solution</b>	<b>CAS-No. 7722-84-1</b>
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<b>Adsorbed organic bound halogens (AOX)</b>
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Result : Product does not contain any organic halogens.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.
- Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.
- European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

### SECTION 14: Transport information

#### 14.1. UN number

2984

#### 14.2. UN proper shipping name

**ADR** : HYDROGEN PEROXIDE, AQUEOUS SOLUTION  
**RID** : HYDROGEN PEROXIDE, AQUEOUS SOLUTION  
**IMDG** : HYDROGEN PEROXIDE, AQUEOUS SOLUTION

#### 14.3. Transport hazard class(es)

ADR-Class : 5.1  
 (Labels; Classification Code; Hazard identification No; Tunnel restriction code) 5.1; O1; 50; (E)  
 RID-Class : 5.1  
 (Labels; Classification Code; Hazard identification No) 5.1; O1; 50  
 IMDG-Class : 5.1  
 (Labels; EmS) 5.1; F-H, S-Q

#### 14.4. Packaging group

ADR : III  
 RID : III

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

IMDG : III

**14.5. Environmental hazards**

Environmentally hazardous according to ADR : no  
 Environmentally hazardous according to RID : no  
 Marine Pollutant according to IMDG-Code : no

**14.6. Special precautions for user**

Not applicable.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

IMDG : Not applicable.

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Data for the product**

EU. REACH, Annex XVII, : Point Nos.: , 3; Listed  
 Marketing and Use  
 Restrictions (Regulation  
 1907/2006/EC)

EU. Directive : ; The substance/mixture does not fall under this legislation.  
 2012/18/EU (SEVESO  
 III) Annex I

**Component: hydrogen peroxide solution CAS-No. 7722-84-1**

EU. Regulation EU No. : ; The substance/mixture does not fall under this legislation.  
 649/2012 concerning the  
 export and import of  
 dangerous chemicals

EU. Regulation No : EC Number: , 231-765-0; Listed  
 1451/2007 [Biocides],  
 Annex I, OJ (L 325)

EU. Regulation No. : Maximum concentration in ready for use preparation: 6 %;  
 1223/2009 on cosmetic  
 products, Annex III: List  
 of Restricted Substances  
 in Cosmetic Products  
 Tooth whitening or bleaching products; See the text of the  
 regulation for applicable exceptions or provisions.

Maximum concentration in ready for use preparation: 0.1 %;

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Oral products (including mouth rinse, tooth paste and tooth whitening or bleaching products); See the text of the regulation for applicable exceptions or provisions.

Maximum concentration in ready for use preparation: 4 %; Skin products; See the text of the regulation for applicable exceptions or provisions.

Maximum concentration in ready for use preparation: 2 %; Cosmetic products for eyelashes; See the text of the regulation for applicable exceptions or provisions.

Maximum concentration in ready for use preparation: 12 %; Hair products; See the text of the regulation for applicable exceptions or provisions.

Maximum concentration in ready for use preparation: 2 %; Products for hardening nails; See the text of the regulation for applicable exceptions or provisions.

EU. Directive 2012/18/EU (SEVESO III) Annex I : Lower-tier requirements: 50 tonnes; Part 1: Categories of dangerous substances; P8: Oxidising Liquids or solids, Category 1, 2 or 3  
Upper-tier requirements: 200 tonnes; Part 1: Categories of dangerous substances; P8: Oxidising Liquids or solids, Category 1, 2 or 3

WGK (DE) : WGK 1: slightly water endangering: 288; Classification source is Annex 2.

**Notification status****hydrogen peroxide solution:**

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	231-765-0
ENCS (JP)	YES	(1)-419
IECSC	YES	
ISHL (JP)	YES	(1)-419
KECI (KR)	YES	97-1-2
KECI (KR)	YES	KE-20204
NZIOC	YES	HSR001326
NZIOC	YES	HSR001450
NZIOC	YES	HSR001449
PHARM (JP)	YES	
PICCS (PH)	YES	
TSCA	YES	

**15.2. Chemical safety assessment**

no data available

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** **SECTION 16: Other information****Full text of H-Statements referred to under sections 2 and 3.**

H271	May cause fire or explosion; strong oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

**Abbreviations and Acronyms**

<b>BCF</b>	bioconcentration factor
<b>BOD</b>	biochemical oxygen demand
<b>CAS</b>	Chemical Abstracts Service
<b>CLP</b>	Classification, Labelling and Packaging
<b>CMR</b>	carcinogenic, mutagenic or toxic to reproduction
<b>COD</b>	chemical oxygen demand
<b>DNEL</b>	derived no-effect level
<b>EINECS</b>	European Inventory of Existing Commercial Chemical Substances
<b>ELINCS</b>	European List of Notified Chemical Substances
<b>GHS</b>	Globally Harmonized System of Classification and Labelling of Chemicals
<b>LC50</b>	median lethal concentration
<b>LOAEC</b>	lowest observed adverse effect concentration
<b>LOAEL</b>	lowest observed adverse effect level
<b>LOEL</b>	lowest observed effect level
<b>NLP</b>	no-longer polymer
<b>NOAEC</b>	no observed adverse effect concentration
<b>NOAEL</b>	no observed adverse effect level
<b>NOEC</b>	no observed effect concentration
<b>NOEL</b>	no observed effect level
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OEL</b>	occupational exposure limit
<b>PBT</b>	persistent, bioaccumulative and toxic
<b>PNEC</b>	predicted no-effect concentration
<b>STOT</b>	specific target organ toxicity
<b>SVHC</b>	substance of very high concern
<b>UVCB</b>	substance of unknown or variable composition, complex reaction products or biological materials
<b>vPvB</b>	very persistent and very bioaccumulative

**Further information**

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

- Key literature references and sources for data : Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
- Methods used for product classification : The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
- Hints for trainings : The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
- Other information :  
The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship.  
The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Industrial use	3	4, 8, 9, 10, 11, 12, 14, 15, 16, 17	0, 1, 2, 8, 9a, 12, 14, 15, 20, 21, 23, 25, 26, 27, 29, 31, 32, 33, 34, 35, 37, 39	1, 2, 3, 4, 5, 7, 10, 12, 13, 14, 15	1, 2, 4, 6a, 6b, 6c, 6d	NA	ES142
2	Distribution of substance	3	4, 8, 9, 10, 11, 12, 14, 15, 16, 17	0, 1, 8, 12, 14, 15, 21, 25, 27, 29, 31, 32, 34, 35, 37, 39	8a, 8b, 9	1, 2, 4, 6a, 6b, 6c	NA	ES278
3	Use in cleaning agents	21	NA	21, 35	NA	8a, 8b, 8d, 8e	NA	ES377
4	Use in cleaning agents	22	NA	21, 35	4, 10, 11, 13, 19	8a, 8b, 8d, 8e	NA	ES400
5	Use in agrochemicals	3	1, 2, 8	0, 20, 37	1, 2, 3, 4	4, 6b	NA	ES327
6	Use in agrochemicals	21	1, 2, 8	20, 37	NA	8a, 8b, 8d, 8e	NA	ES366
7	Use in agrochemicals	22	1, 2, 8	0, 20, 37	1, 2, 3, 4	8a, 8b, 8e, 8d	NA	ES362
8	Use in cosmetics	21	NA	39	NA	8b	NA	ES408
9	Use in cosmetics	22	NA	39	19	8b	NA	ES404
10	Use as a bleach	3	5, 6a, 6b	23, 24, 26, 34	1, 2, 3, 4, 13, 19	4, 6b	NA	ES287
11	Use as a bleach	21	5, 6a, 6b	23, 24, 26, 34	NA	8a, 8b, 8e	NA	ES316
12	Use as a bleach	22	5, 6a, 6b	23, 24, 26, 34	1, 2, 3, 4, 13, 19	8a, 8b, 8e	NA	ES312

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 1: Industrial use

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	<p>SU4: Manufacture of food products</p> <p>SU8: Manufacture of bulk, large scale chemicals (including petroleum products)</p> <p>SU9: Manufacture of fine chemicals</p> <p>SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)</p> <p>SU11: Manufacture of rubber products</p> <p>SU12: Manufacture of plastics products, including compounding and conversion</p> <p>SU14: Manufacture of basic metals, including alloys</p> <p>SU15: Manufacture of fabricated metal products, except machinery and equipment</p> <p>SU16: Manufacture of computer, electronic and optical products, electrical equipment</p> <p>SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment</p>
Chemical product category	<p>PC0: Other (use UCN codes)</p> <p>PC1: Adhesives, sealants</p> <p>PC2: Adsorbents</p> <p>PC8: Biocidal products (e.g. Disinfectants, pest control)</p> <p>PC9a: Coatings and paints, thinners, paint removers</p> <p>PC12: Fertilizers</p> <p>PC14: Metal surface treatment products, including galvanic and electroplating products</p> <p>PC15: Non-metal-surface treatment products</p> <p>PC20: Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents</p> <p>PC21: Laboratory chemicals</p> <p>PC23: Leather tanning, dye, finishing, impregnation and care products</p> <p>PC25: Metal working fluids</p> <p>PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids</p> <p>PC27: Plant protection products</p> <p>PC29: Pharmaceuticals</p> <p>PC31: Polishes and wax blends</p> <p>PC32: Polymer preparations and compounds</p> <p>PC33: Semiconductors</p> <p>PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids</p> <p>PC35: Washing and cleaning products (including solvent based products)</p> <p>PC37: Water treatment chemicals</p> <p>PC39: Cosmetics, personal care products</p>
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)</p> <p>PROC7: Industrial spraying</p> <p>PROC10: Roller application or brushing</p> <p>PROC12: Use of blowing agents in manufacture of foam</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	<p>ERC1: Manufacture of substances</p> <p>ERC2: Formulation of preparations</p>

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

	<p>ERC4: Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)</p> <p>ERC6b: Industrial use of reactive processing aids</p> <p>ERC6c: Industrial use of monomers for manufacture of thermoplastics</p> <p>ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers</p>
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered

### 2.1 Contributing scenario controlling environmental exposure for: ERC1

Activity	Manufacture	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 35% - 90 %
Amount used	Annual site tonnage	75000 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	7,000 m <sup>3</sup> /d
	Dilution Factor (River)	300
	Dilution Factor (Coastal Areas)	1,000
Other given operational conditions affecting environmental exposure	Number of emission days per year	360
	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.003 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Passing of waste air through activated carbon filters
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by ; Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Decomposition in the waste and during treatment., Seal and return containers., No environmental emissions are expected.

### 2.2 Contributing scenario controlling environmental exposure for: ERC6a

Activity	Chemical synthesis.	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 35% - 90 %
Amount used	Annual site tonnage	8950 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	10,000 m <sup>3</sup> /d
	Dilution Factor (River)	40
	Dilution Factor (Coastal Areas)	400

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

Other given operational conditions affecting environmental exposure	Number of emission days per year	300
	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.007 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Passing of waste air through activated carbon filters
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by : , Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Decomposition in the waste and during treatment., Seal and return containers., No environmental emissions are expected.
<b>2.3 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC6a, ERC6b, ERC6c, ERC6d</b>		
Activity	Chemical applications	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 35% - 90 %
Amount used	Annual site tonnage	1010 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Number of emission days per year	300
	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.005 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Passing of waste air through activated carbon filters
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by : , Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Decomposition in the waste and during treatment., Seal and return containers., No environmental emissions are expected.
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### 2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC10, PROC12, PROC13, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 35% - 90 %
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	220 days/year
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC2, PROC3, PROC4, PROC5, PROC7, PROC10, PROC13, PROC14, PROC15)	
	Provide local exhaust ventilation (LEV). (Efficiency: 80 %)(PROC12)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	

### 3. Exposure estimation and reference to its source

#### Environment

ERC1, ERC2, ERC6d, ERC6c, ERC4, ERC6a, ERC6b: EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC1	Manufacture	Fresh water	PEC	0.009mg/L	---
ERC6a	Chemical synthesis.	Fresh water	PEC	0.0063mg/L	---
ERC2, ERC4, ERC6a, ERC6b, ERC6c, ERC6d	Chemical applications	Fresh water	PEC	0.0086mg/L	---
ERC1	Manufacture	Marine water	PEC	0.0015mg/L	---
ERC6a	Chemical synthesis.	Marine water	PEC	0.0006mg/L	---
ERC2, ERC4, ERC6a, ERC6b, ERC6c, ERC6d	Chemical applications	Marine water	PEC	0.0008mg/L	---
ERC1	Manufacture	Soil	PEC	0.145µg/kg	---
ERC6a	Chemical synthesis.	Soil	PEC	0.151µg/kg	---
ERC2, ERC4, ERC6a, ERC6b, ERC6c, ERC6d	Chemical applications	Soil	PEC	0.117µg/kg	---
ERC1	Manufacture	Sewage treatment plant (STP)	PEC	0.63mg/L	---
ERC6a	Chemical synthesis.	Sewage treatment plant (STP)	PEC	0.146mg/L	---
ERC2, ERC4, ERC6a, ERC6b, ERC6c, ERC6d	Chemical applications	Sewage treatment plant (STP)	PEC	0.059mg/L	---

#### Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC10, PROC12, PROC13, PROC14, PROC15:  
ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

PROC1	(90% w/w)	Inhalation worker exposure	0.014mg/m <sup>3</sup>	---
PROC2	(90% w/w)	Inhalation worker exposure	0.142mg/m <sup>3</sup>	---
PROC3	(70% w/w)	Inhalation worker exposure	0.298mg/m <sup>3</sup>	---
PROC4, PROC5, PROC15	(70% w/w)	Inhalation worker exposure	0.496mg/m <sup>3</sup>	---
PROC7, PROC14	(60% w/w)	Inhalation worker exposure	0.425mg/m <sup>3</sup>	---
PROC10	(60% w/w)	Inhalation worker exposure	0.85mg/m <sup>3</sup>	---
PROC12	(60% w/w)	Inhalation worker exposure	0.34mg/m <sup>3</sup>	---
PROC13	(60% w/w)	Inhalation worker exposure	0.85mg/m <sup>3</sup>	---

Good industrial hygiene practice has to be followed if oral exposure is not expected for workers. Workers handling concentrated solutions containing 35% w/w or more are obliged to use appropriate dermal protection.

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 2: Distribution of substance

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU4: Manufacture of food products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment	
Chemical product category	PC0: Other (use UCN codes) PC1: Adhesives, sealants PC8: Biocidal products (e.g. Disinfectants, pest control) PC12: Fertilizers PC14: Metal surface treatment products, including galvanic and electroplating products PC15: Non-metal-surface treatment products PC21: Laboratory chemicals PC25: Metal working fluids PC27: Plant protection products PC29: Pharmaceuticals PC31: Polishes and wax blends PC32: Polymer preparations and compounds PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals PC39: Cosmetics, personal care products	
Process categories	PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b: Industrial use of reactive processing aids ERC6c: Industrial use of monomers for manufacture of thermoplastics	
Activity	Note: this Exposure Scenario is only relevant for an appropriated use according to the quality grade of the substance delivered	

### 2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a, ERC6b, ERC6c

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 90%.
Technical conditions and	Air	Generally closed systems.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	In case of leaks, wash away with plenty of water and flush to industrial wastewater treatment system., Do not release wastewater directly into environment.
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Decomposition in the waste and during treatment., Seal and return containers., No environmental emissions are expected.

### 2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 90%.
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	220 days/year
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC8a, PROC9)	
	Provide local exhaust ventilation (LEV). (Efficiency: 97 %)(PROC8b)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	

### 3. Exposure estimation and reference to its source

#### Environment

No environmental emissions are expected.

#### Workers

PROC8a, PROC8b, PROC9: ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC8a	(70% w/w)	Inhalation worker exposure	0.99mg/m <sup>3</sup>	---
PROC8b	(90% w/w)	Inhalation worker exposure	0.21mg/m <sup>3</sup>	---
PROC9	(90% w/w)	Inhalation worker exposure	0.71mg/m <sup>3</sup>	---

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.  
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.  
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 3: Use in cleaning agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC21: Laboratory chemicals PC35: Washing and cleaning products (including solvent based products)
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
Amount used	Regional use tonnage (tons/year):	6210 ton(s)/year
	Annual amount per site	12.42 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.8 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No specific measures identified.
	Water	Wastewater from professional and private cleaning should be sent to the public sewerage system where it will decompose
Conditions and measures related to external treatment of waste for disposal	Waste treatment	If container is empty, trash as regular municipal waste.
	Disposal methods	Dispose of via regular municipal waste.
		Highly reactive., Decomposition in the waste and during treatment., No environmental emissions are expected.

### 2.2 Contributing scenario controlling consumer exposure for: PC21, PC35

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
	Physical Form (at time of use)	liquid
Amount used	Covers concentrations up to	0.11 kg
Frequency and duration of use	Exposure duration per event	20 min
	Frequency of use	365 days/year

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

Frequency of use	1 Times per day
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### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0037mg/L	---
---	---	Marine water	PEC	0.294 $\mu$ g/L	---
---	---	Soil	PEC	0.111 $\mu$ g/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.0095mg/L	---

#### Consumers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	Spray cleaning, (7% w/w)	Consumer inhalation exposure	0.002mg/m <sup>3</sup>	---
---	Cleaning surfaces by wiping, brushing, (7% w/w)	Consumer inhalation exposure	1.07mg/m <sup>3</sup>	---
---	Sanitary cleaner, (16% w/w)	Consumer inhalation exposure	1.16mg/m <sup>3</sup>	---

Consumers normally do not come into contact with products containing more than 12% w/w of the substance. It is recommended that consumers use gloves and safety glasses when handling pure or barely diluted products. Under normal conditions of use oral exposure to bleaches can be neglected.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information on the assessment method, see:

<http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp>

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 4: Use in cleaning agents

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC21: Laboratory chemicals PC35: Washing and cleaning products (including solvent based products)
Process categories	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
Amount used	Regional use tonnage (tons/year):	6210 ton(s)/year
	Annual amount per site	12.42 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.8 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No specific measures identified.
	Water	Wastewater from professional and private cleaning should be sent to the public sewerage system where it will decompose
Conditions and measures related to external treatment of waste for disposal	Waste treatment	If container is empty, trash as regular municipal waste.
	Disposal methods	Dispose of via regular municipal waste.
		Highly reactive., Decomposition in the waste and during treatment., No environmental emissions are expected.

### 2.2 Contributing scenario controlling worker exposure for: PROC4, PROC10, PROC11, PROC13, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 12%
	Physical Form (at time of	liquid

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

	use)	
Frequency and duration of use	Frequency of use	365 days/year
	Frequency of use	8 hours/day
	Frequency of use	220 days/year
	For a single worker	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0037mg/L	---
---	---	Marine water	PEC	0.294µg/L	---
---	---	Soil	PEC	0.111µg/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.0095mg/L	---

#### Workers

ConsExpo 4.1

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	Spray cleaning, (7% w/w)	Inhalation worker exposure	0.002mg/m <sup>3</sup>	---
---	Cleaning surfaces by wiping, brushing, (7% w/w)	Inhalation worker exposure	1.07mg/m <sup>3</sup>	---
---	Sanitary cleaner, (12% w/w)	Inhalation worker exposure	1.16mg/m <sup>3</sup>	---
---	Using cleaner containing H <sub>2</sub> O <sub>2</sub> , (7% w/w)	Inhalation worker exposure	1.07mg/m <sup>3</sup>	---

Some products that are on the market contain more than 12% w/w. It is recommended that consumers use gloves and safety glasses when handling pure or barely diluted products. Good industrial hygiene practice has to be followed if oral exposure is not expected for workers.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 5: Use in agrochemicals

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2: Mining, (including offshore industries) SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Chemical product category	PC0: Other (use UCN codes) PC20: Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents PC37: Water treatment chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6b: Industrial use of reactive processing aids

### 2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6b

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
Amount used	Regional use tonnage (tons/year):	2645 ton(s)/year
	Annual amount per site	4.93 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0.1 %
	Emission or Release Factor: Water	0.05 %
	Emission or Release Factor: Soil	0.8 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	No specific waste treatment required/proposed

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
	Physical Form (at time of use)	liquid
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC3, PROC4)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	
	Wear respiratory protection (Efficiency: 90 %)(PROC3, PROC4)	

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0085mg/L	---
---	---	Marine water	PEC	0.775 $\mu$ g/L	---
---	---	Soil	PEC	0.113 $\mu$ g/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.088mg/L	---

#### Workers

PROC1, PROC2, PROC3, PROC4: ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	(50% w/w), Indoor use	Inhalation worker exposure	0.007mg/m <sup>3</sup>	---
PROC2	(50% w/w), Indoor use	Inhalation worker exposure	0.708mg/m <sup>3</sup>	---
PROC3	(50% w/w), Indoor use	Inhalation worker exposure	0.213mg/m <sup>3</sup>	---
PROC4	(50% w/w), Indoor use	Inhalation worker exposure	0.354mg/m <sup>3</sup>	---
PROC1	(50% w/w), Outdoor use	Inhalation worker exposure	0.005mg/m <sup>3</sup>	---
PROC2	(50% w/w), Outdoor use	Inhalation worker exposure	0.496mg/m <sup>3</sup>	---
PROC3	(50% w/w), Outdoor use	Inhalation worker exposure	0.149mg/m <sup>3</sup>	---
PROC4	(50% w/w), Outdoor use	Inhalation worker exposure	0.248mg/m <sup>3</sup>	---

Workers handling concentrated solutions containing 35% w/w or more are obliged to use appropriate dermal protection. Good industrial hygiene practice has to be followed if oral exposure is not expected for workers.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 6: Use in agrochemicals

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2: Mining, (including offshore industries) SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Chemical product category	PC20: Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents PC37: Water treatment chemicals
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
Amount used	Regional use tonnage (tons/year):	2645 ton(s)/year
	Annual amount per site	4.93 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0.1 %
	Emission or Release Factor: Water	0.05 %
	Emission or Release Factor: Soil	0.8 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	No specific waste treatment required/proposed

### 2.2 Contributing scenario controlling consumer exposure for: , PC20, PC37

No consumer exposure anticipated

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
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### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0085mg/L	---
---	---	Marine water	PEC	0.775µg/L	---
---	---	Soil	PEC	0.113µg/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.088mg/L	---

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** **Consumers**

No consumer exposure anticipated.

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 7: Use in agrochemicals

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2: Mining, (including offshore industries) SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Chemical product category	PC0: Other (use UCN codes) PC20: Products such as ph-regulators, flocculants, pre-cipitants, neutralization agents PC37: Water treatment chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC8e

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
Amount used	Regional use tonnage (tons/year):	2645 ton(s)/year
	Annual amount per site	4.93 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0.1 %
	Emission or Release Factor: Water	0.05 %
	Emission or Release Factor: Soil	0.8 %

### 2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC3, PROC4)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	
	Wear respiratory protection (Efficiency: 90 %)(PROC3, PROC4)	

### 3. Exposure estimation and reference to its source

#### Environment

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0085mg/L	---
---	---	Marine water	PEC	0.775 $\mu$ g/L	---
---	---	Soil	PEC	0.113 $\mu$ g/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.088mg/L	---

### Workers

PROC1, PROC2, PROC3, PROC4: ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	(50% w/w)	Inhalation worker exposure	0.007mg/m <sup>3</sup>	---
PROC2	(50% w/w)	Inhalation worker exposure	0.708mg/m <sup>3</sup>	---
PROC3	(50% w/w)	Inhalation worker exposure	0.213mg/m <sup>3</sup>	---
PROC4	(50% w/w)	Inhalation worker exposure	0.354mg/m <sup>3</sup>	---
PROC1	(50% w/w)	Inhalation worker exposure	0.005mg/m <sup>3</sup>	---
PROC2	(50% w/w)	Inhalation worker exposure	0.496mg/m <sup>3</sup>	---
PROC3	(50% w/w)	Inhalation worker exposure	0.149mg/m <sup>3</sup>	---
PROC4	(50% w/w)	Inhalation worker exposure	0.248mg/m <sup>3</sup>	---

Good industrial hygiene practice has to be followed if oral exposure is not expected for workers. Workers handling concentrated solutions containing 35% w/w or more are obliged to use appropriate dermal protection.

#### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 8: Use in cosmetics

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC39: Cosmetics, personal care products
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems
Activity	Use for hair bleaching and dyeing and tooth bleaching, This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance

### 2.1 Contributing scenario controlling environmental exposure for: ERC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 18%
Amount used	Regional use tonnage (tons/year):	6210 ton(s)/year
	Annual amount per site	12.42 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.8 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No specific measures identified.
	Water	Wastewater from professional and private cleaning should be sent to the public sewerage system where it will decompose
Conditions and measures related to external treatment of waste for disposal	Disposal methods	If container is empty, trash as regular municipal waste., Dispose of via regular municipal waste.
		Highly reactive., Decomposition in the waste and during treatment., No environmental emissions are expected.

### 2.2 Contributing scenario controlling consumer exposure for: PC39

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 18%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Intermittent use/release	

### 3. Exposure estimation and reference to its source

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 
**Environment**

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0037mg/L	---
---	---	Marine water	PEC	0.294 $\mu$ g/L	---
---	---	Soil	PEC	0.111 $\mu$ g/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.0095mg/L	---

**Consumers**

No consumer exposure anticipated.

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 9: Use in cosmetics

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	PC39: Cosmetics, personal care products
Process categories	PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems
Activity	Use for hair bleaching and dyeing and tooth bleaching, This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance

### 2.1 Contributing scenario controlling environmental exposure for: ERC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 18%
Amount used	Regional use tonnage (tons/year):	6210 ton(s)/year
	Annual amount per site	12.42 ton(s)/year
Frequency and duration of use	Continuous exposure	365 days/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0.8 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	No specific measures identified.
	Water	Wastewater from professional and private cleaning should be sent to the public sewerage system where it will decompose
Conditions and measures related to external treatment of waste for disposal	Disposal methods	If container is empty, trash as regular municipal waste., Dispose of via regular municipal waste.
		Highly reactive., Decomposition in the waste and during treatment., No environmental emissions are expected.

### 2.2 Contributing scenario controlling worker exposure for: PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 18%
Frequency and duration of use	Intermittent use/release	
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
Conditions and measures related to personal protection, hygiene	Wear protective gloves/ protective clothing/ eye protection/ face protection.	

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

and health evaluation

Wash thoroughly after open handling of the product.  
Remove and wash contaminated clothing before re-use.  
Wash off any skin contamination immediately.

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	PEC	0.0037mg/L	---
---	---	Marine water	PEC	0.294 $\mu$ g/L	---
---	---	Soil	PEC	0.111 $\mu$ g/kg	---
---	---	Sewage treatment plant (STP)	PEC	0.0095mg/L	---

#### Workers

Not to be assessed.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.  
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.  
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 10: Use as a bleach

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6a: Manufacture of wood and wood products SU6b: Manufacture of pulp, paper and paper products
Chemical product category	PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6b: Industrial use of reactive processing aids

### 2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC6b

Activity	Pulp bleaching	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	43600 ton(s)/year
	Annual amount per site	9810 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	17,500 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Number of emission days per year	360
	Emission or Release Factor: Air	0.001 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0.0001 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Optional passing of waste air through activated carbon filters.
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by ;, Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

disposal	Highly reactive., Seal and return containers., No environmental emissions are expected.
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### 2.2 Contributing scenario controlling environmental exposure for: ERC4, ERC6b

Activity	Other bleaching	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	2025 ton(s)/year
	Annual amount per site	405 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Number of emission days per year	300
	Emission or Release Factor: Air	0.001 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Optional passing of waste air through activated carbon filters.
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by ; Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Seal and return containers., No environmental emissions are expected.

### 2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC13, PROC19

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	220 days/year
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 90 %)(PROC2, PROC3, PROC4, PROC13)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use. Wash off any skin contamination immediately.	

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	Pulp bleaching	Fresh water	PEC	0.0098mg/L	---
---	Pulp bleaching	Marine water	PEC	0.001mg/L	---
---	Pulp bleaching	Soil	PEC	0.154 $\mu$ g/kg	---
---	Pulp bleaching	Sewage treatment plant (STP)	PEC	0.098mg/L	---
---	Other bleaching	Fresh water	PEC	0.004mg/L	---
---	Other bleaching	Marine water	PEC	0.0004mg/L	---
---	Other bleaching	Soil	PEC	0.128 $\mu$ g/kg	---
---	Other bleaching	Sewage treatment plant (STP)	PEC	0.042mg/L	---

#### Workers

PROC1, PROC2, PROC3, PROC4, PROC13: ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	(35% w/w)	Inhalation worker exposure	0.005mg/m <sup>3</sup>	---
PROC2	(35% w/w)	Inhalation worker exposure	0.05mg/m <sup>3</sup>	---
PROC3	(35% w/w)	Inhalation worker exposure	0.149mg/m <sup>3</sup>	---
PROC4	(35% w/w)	Inhalation worker exposure	0.248mg/m <sup>3</sup>	---
PROC13	(35% w/w)	Inhalation worker exposure	0.496mg/m <sup>3</sup>	---

Good industrial hygiene practice has to be followed if oral exposure is not expected for workers. Workers handling concentrated solutions containing 35% w/w or more are obliged to use appropriate dermal protection.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 11: Use as a bleach

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6a: Manufacture of wood and wood products SU6b: Manufacture of pulp, paper and paper products
Chemical product category	PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	43600 ton(s)/year
	Annual amount per site	9810 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	17,500 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Number of emission days per year	360
	Emission or Release Factor: Air	0.001 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
	Highly reactive., Seal and return containers., No environmental emissions are expected.	

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e

Activity	Other bleaching	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	2025 ton(s)/year
	Annual amount per site	405 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

Other given operational conditions affecting environmental exposure	Number of emission days per year	300
	Emission or Release Factor: Air	0.01 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Optional passing of waste air through activated carbon filters.
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by ; Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
		Highly reactive., Seal and return containers., No environmental emissions are expected.

### 2.3 Contributing scenario controlling consumer exposure for: PC23, PC24, PC26, PC34

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Amount used per event	0.1 l
Frequency and duration of use	Exposure duration per event	10 min
	Frequency of use	4 events/week

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	Pulp bleaching	Fresh water	PEC	0.0098mg/L	---
---	Pulp bleaching	Marine water	PEC	0.001mg/L	---
---	Pulp bleaching	Soil	PEC	0.154µg/kg	---
---	Pulp bleaching	Sewage treatment plant (STP)	PEC	0.098mg/L	---
---	Other bleaching	Fresh water	PEC	0.004mg/L	---
---	Other bleaching	Marine water	PEC	0.0004mg/L	---
---	Other bleaching	Soil	PEC	0.128µg/kg	---
---	Other bleaching	Sewage treatment plant (STP)	PEC	0.042mg/L	---

#### Consumers

Based on EU Risk Assessment Report, European Commission 2003

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
---	---	Consumer inhalation	0.13mg/m <sup>3</sup>	---

**HYDROGEN PEROXIDE  $\geq 8$  -  $< 20\%$** 

exposure

Under normal conditions of use oral exposure to bleaches can be neglected. Consumers normally do not come into contact with products containing more than 12% w/w of the substance. Some products that are on the market contain more than 12% w/w. It is recommended that consumers use gloves and safety glasses when handling pure or barely diluted products.

**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

If the local conditions deviate significantly from the values in the EU RAR, then further site specific evaluation is required  
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

### 1. Short title of Exposure Scenario 12: Use as a bleach

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6a: Manufacture of wood and wood products SU6b: Manufacture of pulp, paper and paper products
Chemical product category	PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC26: Paper and board dye, finishing and impregnation products: including bleaches and other processing aids PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

### 2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e

Activity	Pulp bleaching	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	43600 ton(s)/year
	Annual amount per site	9810 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	17,500 m3/d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
	Other data. Other information	Pulp bleaching:
Other given operational conditions affecting environmental exposure	Number of emission days per year	360
	Emission or Release Factor: Air	0.001 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Optional passing of waste air through activated carbon filters.
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by ; Biological wastewater treatment, ozonation or liquid phase carbon adsorption

## HYDROGEN PEROXIDE $\geq 8$ - $< 20\%$

Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
	Highly reactive., Seal and return containers., No environmental emissions are expected.	
<b>2.2 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8e</b>		
Activity	Other bleaching	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Regional use tonnage (tons/year):	2025 ton(s)/year
	Annual amount per site	405 ton(s)/year
Environment factors not influenced by risk management	Flow rate of receiving surface water	2,000 m <sup>3</sup> /d
	Dilution Factor (River)	10
	Dilution Factor (Coastal Areas)	100
Other given operational conditions affecting environmental exposure	Number of emission days per year	300
	Emission or Release Factor: Air	0.01 %
	Emission or Release Factor: Water	0.009 %
	Emission or Release Factor: Soil	0 %
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Air	Optional passing of waste air through activated carbon filters.
	Water	Optional pre-treatment of wastewater by steam stripping, must be treated by : Biological wastewater treatment, ozonation or liquid phase carbon adsorption
Conditions and measures related to external treatment of waste for disposal	Waste treatment	Waste has to be treated as industrial waste and should be incinerated in thermal combustion.
	Highly reactive., Seal and return containers., No environmental emissions are expected.	
<b>2.3 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC13, PROC19</b>		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	220 days/year
Technical conditions and measures to control dispersion from source towards the worker	Provide extraction ventilation at points where emissions occur.	
	Provide local exhaust ventilation (LEV). (Efficiency: 80 %)(PROC2, PROC3, PROC4, PROC13, PROC19)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash thoroughly after open handling of the product. Remove and wash contaminated clothing before re-use.	
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Wash off any skin contamination immediately.

### 3. Exposure estimation and reference to its source

#### Environment

EUSES

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	Pulp bleaching	Fresh water	PEC	0.0098mg/L	---
---	Pulp bleaching	Marine water	PEC	0.001mg/L	---
---	Pulp bleaching	Soil	PEC	0.154µg/kg	---
---	Pulp bleaching	Sewage treatment plant (STP)	PEC	0.098mg/L	---
---	Other bleaching	Fresh water	PEC	0.004mg/L	---
---	Other bleaching	Marine water	PEC	0.0004mg/L	---
---	Other bleaching	Soil	PEC	0.128µg/kg	---
---	Other bleaching	Sewage treatment plant (STP)	PEC	0.042mg/L	---

#### Workers

PROC1, PROC2, PROC3, PROC4, PROC13, PROC19: ECETOC TRA worker V3

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	(35% w/w)	Inhalation worker exposure	0.005mg/m <sup>3</sup>	---
PROC2	(35% w/w)	Inhalation worker exposure	0.496mg/m <sup>3</sup>	---
PROC3	(35% w/w)	Inhalation worker exposure	0.298mg/m <sup>3</sup>	---
PROC4	(35% w/w)	Inhalation worker exposure	0.992mg/m <sup>3</sup>	---
PROC13	(35% w/w)	Inhalation worker exposure	0.34mg/m <sup>3</sup>	---
PROC19	(35% w/w)	Inhalation worker exposure	0.85mg/m <sup>3</sup>	---

Workers handling concentrated solutions containing 35% w/w or more are obliged to use appropriate dermal protection. Good industrial hygiene practice has to be followed if oral exposure is not expected for workers.

### 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

#### Additional good practice advice beyond the REACH Chemical Safety Assessment

These measures involve good personal and housekeeping practices (i.e. regular cleaning), no eating and smoking at the workplace, wearing of standard working clothes and shoes.

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