



STERIS®

# VAPROX® HC

## Sterilant

### Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 3/23/2017

Version: 1.0

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Mixture  
Trade name : VAPROX® HC Sterilant  
Product code : PB007, PB028  
SDS No : A124

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

#### 1.2.1. Relevant identified uses

Industrial/Professional use spec : Product for industrial use only  
Use of the substance/mixture : For use with STERIS V-Pro® Sterilizers

#### 1.2.2. Uses advised against

No additional information available

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

Manufacturer:

STERIS Corporation  
P. O. Box 147, St. Louis, MO 63166, US  
Telephone Number for Information: 1-800-548-4873 (Customer Service-Healthcare Products)  
US Emergency Telephone No.1-314-535-1395 (STERIS); 1-800-424-9300 (CHEMTREC)

Supplier:

STERIS Limited  
Chancery House, 190 Waterside Road, Hamilton Industrial Park,  
Leicester, LE5 1QZ, UK  
Product/Technical Information Phone No: +44 (0) 116 276 8636  
Email: asksteris\_msds@steris.com

### 1.4. Emergency telephone number

Emergency number : +44 (0) 1895 622 639

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Ox. Liq. 2	H272
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:dust,mist)	H332
Skin Corr. 1B	H314
STOT SE 3	H335

Full text of H-phrases: see section 16

#### Adverse physicochemical, human health and environmental effects

No additional information available

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#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS03

GHS05

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H272 - May intensify fire; oxidiser  
H302 - Harmful if swallowed  
H332 - Harmful if inhaled  
H314 - Causes severe skin burns and eye damage  
H335 - May cause respiratory irritation

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P261 - Avoid breathing mist and/or vapours  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P370 + P378 - In case of fire: Use water for extinction

#### 2.3. Other hazards

Risk of decomposition by heat or by contact with incompatible materials.

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

#### 3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Hydrogen peroxide	(CAS No) 7722-84-1 (EC no) 231-765-0 (EC index no) 008-003-00-9	59	Ox. Liq. 1, H271 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1A, H314 STOT SE 3, H335 Aquatic Chronic 3, H412

Full text H-phrases: see section 16

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. In all cases of doubt, or when symptoms persist, seek medical attention

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Immediately get medical attention

First-aid measures after skin contact : Remove contaminated clothing immediately. Immediately flush skin with plenty of water for at least 15 minutes. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse

First-aid measures after eye contact : In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Immediately get medical attention. Remove contact lenses, if present and easy to do. Continue rinsing.

First-aid measures after ingestion : If victim completely conscious/alert, give water or milk. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER/doctor/physician if you feel unwell.

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

Symptoms/injuries : Hydrogen peroxide at these concentrations is a strong oxidant. Causes severe skin burns and eye damage

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Symptoms/injuries after inhalation	: Harmful if inhaled. Possible inflammation of the respiratory tract or pulmonary edema.
Symptoms/injuries after eye contact	: Eye contact with concentrated solutions may cause severe eye damage followed by loss of sight
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Severe irritation or burns to the mouth, throat, esophagus, and stomach

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

No additional information available.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media	: Water or water fog
Unsuitable extinguishing media	: Do not use foam, dry powder or carbon dioxide.

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

Hazardous decomposition products in case of fire	: Hydrogen peroxide at these concentrations is a strong oxidant. On decomposition releases oxygen which may intensify fire. Containers may swell and burst during a fire due to internal pressure caused by heat
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#### 5.3. Advice for firefighters

Precautionary measures fire	: On heating, there is a risk of bursting due to internal pressure build-up. Cool down the containers exposed to heat with a water spray
Firefighting instructions	: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers. Prevent fire-fighting water from entering environment
Protective equipment for firefighters	: Use self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection
Other information	: Oxygen evolution decomposition may burst sealed containers and accelerate the burning rates of other combustible materials. Damp material in contact with paper, wood, cloth, etc. may cause spontaneous combustion of the organic material

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Ensure adequate ventilation. Do not breathe fumes, vapors. Avoid contact with skin, eyes and clothes. Contain spill if safe to do so.
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##### 6.1.1. For non-emergency personnel

Protective equipment	: Wear protective gloves and eye/face protection. For further information refer to section 8: Exposure-controls/personal protection
Emergency procedures	: Contain spill if safe to do so. Evacuate unnecessary personnel

##### 6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection
Emergency procedures	: Ventilate area

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Spills should be contained and may be cautiously neutralized with sodium metabisulfite or sodium sulfite (1.0 lb of either to 100 ml peroxide), or absorbed on appropriate materials and placed in a container for disposal. Do not use sawdust or cellulose materials as an absorbent. Flush spill site with large quantities of water (20 parts water to 1 part hydrogen peroxide) to a sanitary sewer.
Other information	: Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection

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#### SECTION 7: Handling and storage

##### 7.1. Precautions for safe handling

- Precautions for safe handling : Read and observe all labeled use instructions.
- Hygiene measures : Take care for general good hygiene and housekeeping. Wash hands thoroughly after handling. Contaminated clothing should be washed thoroughly in order to eliminate a delayed potential fire hazard. Do not eat, drink or smoke when using this product

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

- Technical measures : Provide adequate ventilation. A washing facility/water for eye and skin cleaning purposes should be present. Floors should be impervious, resistant to liquids and easy to clean
- Storage conditions : Store in a cool, well ventilated place.
- Incompatible materials : Strong alkalis. Strong oxidizing agents. Organic materials. Reducing agents. Metal salts. Alkali metals. Wood. Paper. Copper and its alloys. Metals. Cyanide. Hazardous reactions may occur on contact with certain chemicals. (Refer to the list of incompatible materials section 10: "Stability-Reactivity")
- Prohibitions on mixed storage : Keep away from incompatible materials
- Storage area : Store in dry, cool, well-ventilated area
- Special rules on packaging : Correctly labelled

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

No additional information available

#### SECTION 8: Exposure controls/personal protection

##### 8.1. Control parameters

Hydrogen peroxide (7722-84-1)		
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	1.4 mg/m <sup>3</sup>
United Kingdom	WEL TWA (ppm)	1 ppm
United Kingdom	WEL STEL (mg/m <sup>3</sup> )	2.8 mg/m <sup>3</sup>
United Kingdom	WEL STEL (ppm)	2 ppm
USA - ACGIH	ACGIH TWA (ppm)	1 ppm
USA - NIOSH	NIOSH IDLH (ppm)	75 ppm
USA - NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1.4 mg/m <sup>3</sup>
USA - NIOSH	NIOSH REL (TWA) (ppm)	1 ppm
USA - OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1.4 mg/m <sup>3</sup>
USA - OSHA	OSHA PEL (TWA) (ppm)	1 ppm

##### 8.2. Exposure controls

- Appropriate engineering controls : Ensure adequate ventilation. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Local exhaust ventilation is recommended to maintain vapor level below the threshold limit value (TLV)
- Personal protective equipment : Personal protective equipment should be selected based upon the conditions under which this product is handled or used. Protective clothing. Gloves. Protective goggles. Avoid all unnecessary exposure



- Hand protection : Wear protective gloves. Use gloves constructed of chemical resistant materials such as nitrile, neoprene, rubber, or vinyl if frequent or prolonged contact is expected.
- Eye protection : Wear protective eyewear.
- Skin and body protection : Wear suitable protective clothing. Chemical resistant lab coat and closed toe shoes
- Respiratory protection : None required for routine use. In emergency situations where established limits are exceeded, it is recommended to use SCBA (Self-Contained Breathing Apparatus).
- Other information : Do not eat, drink or smoke during use

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#### SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: Clear
Colour	: Colourless
Odour	: Odourless
Odour threshold	: No data available
pH	: ≤ 3.5
Relative evaporation rate (butyl acetate=1)	: >1
Melting point	: No data available
Freezing point	: -55°C
Boiling point	: 119°C
Flash point	: Not flammable
Auto-ignition temperature	: Not flammable
Decomposition temperature	: > 85°C
Flammability (solid, gas)	: Non flammable
Vapour pressure	: 14.2 mm Hg @ 30°C
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.24 g/ml Specific Gravity @ 20°C
Solubility	: Water: completely soluble
Log Pow	: -1.57 @ 20°C
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 1.079 cP @ 25°C
Explosive properties	: Not explosive
Oxidising properties	: Oxidizer
Explosive limits	: Not explosive

##### 9.2. Other information

No additional information available

#### SECTION 10: Stability and reactivity

##### 10.1. Reactivity

Reactive and oxidizing agent.

##### 10.2. Chemical stability

Stable under normal conditions of use.

##### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur. Contamination may cause rapid decomposition, oxygen gas release and dangerous pressures

##### 10.4. Conditions to avoid

Extremely high or low temperatures. Direct sunlight. Protect from all contamination

##### 10.5. Incompatible materials

Cyanides, hexavalent chromium compounds, nitric acid, potassium permanganate, oxidizers, reducers, combustible materials, flammable vapors, alkalies, copper, dirt, dust, iron, heavy metals and their salts and organic materials (especially vinyl monomers)

##### 10.6. Hazardous decomposition products

Contamination may cause rapid decomposition, oxygen gas release and dangerous pressures

#### SECTION 11: Toxicological information

##### 11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed. Harmful if inhaled.

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ATE (oral)	500,000 mg/kg bodyweight
ATE (dust,mist)	1,500 mg/l/4h

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#### Hydrogen peroxide (7722-84-1)

LD50 oral rat	801 mg/kg
LD50 dermal rat	4060 mg/kg
LD50 dermal rabbit	2000 mg/kg
LC50 inhalation rat (mg/l)	2 g/m <sup>3</sup> (Exposure time: 4 h)
ATE (oral)	801,000 mg/kg bodyweight
ATE (dermal)	2000,000 mg/kg bodyweight
ATE (gases)	4500,000 ppmv/4h
ATE (vapours)	2,000 mg/l/4h
ATE (dust,mist)	2,000 mg/l/4h

Skin corrosion/irritation	: Causes severe skin burns and eye damage pH: ≤ 3.5
Serious eye damage/irritation	: Serious eye damage, category 1, implicit pH: ≤ 3.5
Respiratory or skin sensitisation	: Not a sensitizer
Germ cell mutagenicity	: This product is not recognized as mutagenic by Research Agencies. In vivo tests did not show mutagenic effects.
Carcinogenicity	: IARC, NTP and OSHA do not list this product or its ingredients as carcinogens. ACGIH lists hydrogen peroxide as a "Confirmed Animal Carcinogen with Unknown Relevance to Humans" A3.
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Eyes. Respiratory System. Skin.
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Harmful if swallowed. Harmful to eyes and skin.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : Harmful to aquatic life with long lasting effects

#### Hydrogen peroxide (7722-84-1)

LC50 fishes 1	16.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	7.7 mg/l (Exposure time: 24 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	2.5 mg/l (Exposure time: 72 h - Species: Chlorella vulgaris)
LC50 fish 2	18 - 56 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [Static])
EC50 Daphnia 2	18 - 32 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

### 12.2. Persistence and degradability

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Persistence and degradability	Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10-20 hours and in soils from minutes to hours depending on microbiological activity and metal contaminants.
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### 12.3. Bioaccumulative potential

#### VAPROX® HC Sterilant

Bioaccumulative potential	Not established
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#### Hydrogen peroxide (7722-84-1)

BCF fish 1	(no bioaccumulation)
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#### 12.4. Mobility in soil

Will likely be mobile in the environment due to its water solubility.

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

This product is not considered to be persistent, bioaccumulating nor toxic (PBT).

#### 12.6. Other adverse effects

Decomposes into oxygen and water.

No adverse effects.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations : Empty cartridges may be disposed in normal trash. Expired cartridges should be disposed of according to local policies for hazardous materials. For additional guidance, contact the State Water Board or Regional Office of the EPA.

Additional information : Not applicable

Ecology - waste materials : Decomposes into oxygen and water. No adverse effects.

### SECTION 14: Transport information

In accordance with ADR/RID/IMDG/IATA/ADN

Keep well ventilated and away from direct sunlight or heat sources.

#### 14.1. UN number

##### Applies to PB007:

UN-No. : 2014

UN-No.(IATA) : 2014

UN-No. (IMDG) : 2014

UN-No.(ADN) : 2014

#### 14.2. UN proper shipping name

Proper Shipping Name : HYDROGEN PEROXIDE, AQUEOUS SOLUTION

Proper Shipping Name (IATA) : HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS, 59 %

Transport document description : UN 2014 HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS 59% STABILIZED, 5.1 (8), II

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

Class (UN) : 5.1

Classification code (UN) : OC1

Class (IATA) : 5.1

Class (IMDG) : 5.1

Class (ADN) : 5.1

Hazard labels (UN) : 5.1, 8



#### 14.4. Packing group

Packing group (UN) : II

#### 14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

#### 14.6. Special precautions for user

##### 14.6.1. Overland transport

Hazard identification number (Kemler No.) : 58

Classification code (UN) : OC1

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Orange plates



Transport category (ADR) : 2  
Tunnel restriction code : E  
Limited quantities (ADR) : 1L  
Excepted quantities (ADR) : E2  
EAC code : 2P

**Applies to PB028: US and Canada: Ground Modes: Conforms with 49 CFR 173.4a and TDG 1.17.1**

**International: Ground Modes: Conforms with ADR/RID/ADG7 3.5**

#### 14.6.2. Transport by sea

**PB007:** See above information (IMDG)

**PB028: IMDG Conforms with IMDG 3.5 Shipping paper must state, "dangerous goods in excepted quantities"**

#### 14.6.3. Air transport

**PB007:** Forbidden (US, Canada, International)

**PB028:** Conforms with 49CFR SP A60 (US) Conforms with ICAO SP A75 (International)

#### 14.6.4. Inland waterway transport

Vaprox HC is not considered a marine pollutant.

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

Not applicable

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

##### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Contains no REACH candidate substance

##### 15.1.2. National regulations

No additional information available

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### SECTION 16: Other information

Revision Date : 3/23/2017

Sources of Key data : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

Other information : None

Full text of H- phrases:

Acute Tox. 4 (Inhalation: mist)	Acute toxicity (Inhalation:mist), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (Oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Ox. Liq. 1	Oxidising Liquids, Category 1
Ox. Liq. 2	Oxidising Liquids, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity (single exposure), Category 3
H271	May cause fire or explosion; strong oxidiser



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H272	May intensify fire; oxidiser
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects

SDS EU (REACH Annex II)

*The information on this sheet is not a specification and does not guarantee specific properties. The information is intended to provide general knowledge as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product or where instruction or recommendations are not followed.*