

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

1.1. Product identifier

Product form : Mixture
Trade name : Revital-Ox® Resert™ - High Level Disinfectant
Product code : 4455

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

Use of the substance/mixture : High Level Disinfectant for Semi-Critical Medical Devices
Use of the substance/mixture : For professional use only

1.3. Details of the supplier of the safety data sheet

STERIS Corporation
P. O. Box 147, St. Louis, MO 63166, US
Telephone Number for Information: 1-800-444-9009 (Customer Service-Scientific Products)

1.4. Emergency telephone number

Emergency number : US Emergency Telephone No.1-314-535-1395 (STERIS); 1-800-424-9300 (CHEMTREC)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Eye Dam. 2B H320

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) : Not Applicable
Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H320 - Causes eye irritation

Precautionary statements (GHS-US) : P264 - Wash thoroughly after handling
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337+P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable.

3.2. Mixture

Name	Product identifier	%	GHS-US classification
2-Furancarboxylic acid	(CAS No) 88-14-2	2 - 3	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Hydrogen peroxide	(CAS No) 7722-84-1	1 - 3	Ox. Liq. 1, H271 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Chronic 3, H412
Potassium hydroxide	(CAS No) 1310-58-3	0.405	Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314
Phosphoric acid	(CAS No) 7664-38-2	0.4	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314

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Name	Product identifier	%	GHS-US classification
1-Hydroxyethane-1,1-diphosphonic acid	(CAS No) 2809-21-4	0.3	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318

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. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Seek medical attention immediately.
- First-aid measures after skin contact : Immediately flush skin with plenty of water for at least 15 minutes. Seek medical attention if irritation develops.
- First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Give water to drink if victim completely conscious/alert. Immediately call a POISON CENTER or doctor/physician.

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

- Symptoms/injuries after skin contact : Repeated or prolonged skin contact may cause irritation.
- Symptoms/injuries after eye contact : Fine dispersion/spraying/misting: May cause eye irritation.

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 fog. Foam, carbon dioxide, dry chemical.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Contains hydrogen peroxide, will not burn but decomposition will generate oxygen that increases the explosive limits, enhances the burning rate and may initiate fire in combustion materials. 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.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protective equipment for firefighters : Do not enter fire area without proper protective equipment, including respiratory protection.
- Other information : Contact with metallic substances may release flammable hydrogen gas.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Stop leak if safe to do so. Avoid contact with skin, eyes and clothing. Avoid breathing dust, mist or spray. Spilled material may present a slipping hazard. Ensure adequate air ventilation. Work in a well-ventilated area.

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

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

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6.2. Environmental precautions

Product may be flushed to a sanitary sewer with copious amounts of water, if in accordance with local, state or national legislation. Dispose in a safe manner in accordance with local/national regulations. Ensure all national/local regulations are observed.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Contain and/or absorb spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not absorb in sawdust, paper, cloth or other combustible absorbents. Collect all waste in suitable and labelled containers and dispose according to local legislation. Flush residue with large amounts of water. Do not allow to enter into surface water or drains. Ensure all national/local regulations are observed.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Product for industrial use only. Read label before use. Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent formation of vapor. For further information refer to Section 8: Exposure-controls/personal protection.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Separate working clothes from town clothes. Launder separately. Handle in accordance with good industrial hygiene and safety practices.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : A washing facility/water for eye and skin cleaning purposes should be present. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits.

Storage conditions : Keep only in original container. Keep container closed when not in use. Store in a dry, cool and well-ventilated place. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Keep out of direct sunlight.

Incompatible materials : Reducing agents. Iron. Heavy metals. Copper alloys. Caustic products. Combustible materials.

7.3. Specific end use(s)

No additional information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium hydroxide (1310-58-3)		
USA ACGIH	ACGIH Ceiling (mg/m ³)	2 mg/m ³

Phosphoric acid (7664-38-2)		
USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH STEL (mg/m ³)	3 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³

Hydrogen peroxide (7722-84-1)		
USA ACGIH	ACGIH TWA (ppm)	1 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1.4 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1 ppm

8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation.

Personal protective equipment : Avoid all unnecessary exposure. Personal protective equipment should be selected based upon the conditions under which this product is handled or used. Protective clothing. Gloves. Protective goggles.



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Hand protection	: Gloves that are chemically resistant to the materials within this product should be worn. Examples of preferred glove barrier materials include: butyl rubber, chlorinated polyethylene, natural rubber (latex), Neoprene, Nitrile / butadiene rubber, polyethylene, ethyl vinyl alcohol laminate, polyvinyl chloride or Viton. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Eye protection	: Wear chemical goggles or safety glasses.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Color	: Colorless to light straw
Odor	: No data available
Odor threshold	: No data available
pH	: 2.2 - 2.6 Approximately
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: >160°F (ASTM D 92-05a (Cleveland Open Cup))
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.022 g/ml Specific Gravity
Solubility	: Water: Completely soluble
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available.

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

No additional information available.

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10.5. Incompatible materials

Reducing agents. Iron. Heavy metals. Copper and its alloys. Caustic products. Combustible materials.

10.6. Hazardous decomposition products

Thermal decomposition generates: Fume. Carbon monoxide. Nitrogen oxides. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

1-Hydroxyethane-1,1-diphosphonic acid (2809-21-4)	
LD50 oral rat	2400 mg/kg
LD50 dermal rabbit	> 7940 mg/kg
ATE CLP (oral)	500.000 mg/kg bodyweight

Potassium hydroxide (1310-58-3)	
LD50 oral rat	214 mg/kg
ATE CLP (oral)	500.000 mg/kg bodyweight

Phosphoric acid (7664-38-2)	
LD50 oral rat	1530 mg/kg
LD50 dermal rabbit	2730 mg/kg
LC50 inhalation rat (mg/l)	> 850 mg/m ³ (Exposure time: 1 h)
ATE CLP (oral)	1530.000 mg/kg bodyweight
ATE CLP (dermal)	2730.000 mg/kg bodyweight

Hydrogen peroxide (7722-84-1)	
LD50 oral rat	801 mg/kg
LD50 dermal rabbit	2000 mg/kg
LC50 inhalation rat (mg/l)	2 g/m ³ (Exposure time: 4 h)
ATE CLP (oral)	801.000 mg/kg bodyweight
ATE CLP (dermal)	2000.000 mg/kg bodyweight
ATE CLP (gases)	4500.000 ppmv/4h
ATE CLP (vapors)	2.000 mg/l/4h
ATE CLP (dust,mist)	2.000 mg/l/4h
IARC group	3 - Not classifiable

Skin corrosion/irritation	: Dermal Tox: LD ₅₀ > 5000mg/kg pH: 2.2 - 2.6 Approximately
Serious eye damage/irritation	: May have the potential to be a mild irritant pH: 2.2 - 2.6 Approximately
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
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	: Not classified Based on available data, the classification criteria are not met
Symptoms/injuries after skin contact	: Repeated or prolonged skin contact may cause irritation
Symptoms/injuries after eye contact	: In fine dispersion/spraying/misting: May cause eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

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Aquatic Toxicity : LC50 > 750 mg/l

1-Hydroxyethane-1,1-diphosphonic acid (2809-21-4)	
LC50 fishes 1	868 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	527 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	360 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
NOEC (acute)	1000 mg/kg (Exposure time: 14 Days - Species: Eisenia foetida [soil dry weight])

Hydrogen peroxide (7722-84-1)	
LC50 fishes 1	16.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	18 - 32 mg/l (Exposure time: 48 h - Species: Daphnia magna [static])
LC50 fish 2	18 - 56 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

12.2. Persistence and degradability

Revital-Ox [™] Resert [™] High Level Disinfectant	
Persistence and degradability	The surfactant(s) contained in this preparation complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No. 648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

12.3. Bioaccumulative potential

Revital-Ox [®] Resert [™] - High Level Disinfectant	
Bioaccumulative potential	Not established.

1-Hydroxyethane-1,1-diphosphonic acid (2809-21-4)	
BCF fish 1	< 50
Log Pow	3.49

Potassium hydroxide (1310-58-3)	
Log Pow	0.65

Hydrogen peroxide (7722-84-1)	
BCF fish 1	(no bioaccumulation)

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Product may be flushed to a sanitary sewer with copious amounts of water, if in accordance with local, state or national legislation. Dispose in a safe manner in accordance with local/national regulations. Ensure all national/local regulations are observed.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Not regulated for transport.

Additional information

Other information : No supplementary information available.

ICAO/IATA Class : Product containers are vented; therefore, this product cannot be shipped by air.

ADR

Transport document description : No additional information available.

Transport by sea

No additional information available.

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Air transport

ICAO/IATA Class : Product containers are vented; therefore, this product cannot be shipped by air.

SECTION 15: Regulatory information

15.1. US Federal regulations

1-Hydroxyethane-1,1-diphosphonic acid (2809-21-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Potassium hydroxide (1310-58-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 1000 lb

Phosphoric acid (7664-38-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 5000 lb

Hydrogen peroxide (7722-84-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on the United States SARA Section 302

SARA Section 302 Threshold Planning Quantity (TPQ) : 1000 (concentration >52%)

2-Furancarboxylic acid (88-14-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. US State regulations

No additional information available.

SECTION 16: Other information

Revision Date : 06/07/2022

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Liq. 1	Oxidizing Liquids, Category 1
Skin Corr. 1A	skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H271	May cause fire or explosion; strong oxidiser
H290	May be corrosive to metals
H301	Toxic if swallowed
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H320	Causes eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects

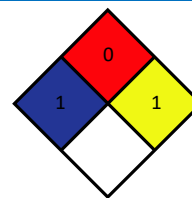
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NFPA health hazard	: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 1 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

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