**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 Endoscopes
- **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**: Not classified.

2.2. **Label elements**
- **GHS-US labelling**: Not applicable.

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**

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Furancarboxylic acid</td>
<td>(CAS No) 88-14-2</td>
<td>2 - 3</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>(CAS No) 7722-84-1</td>
<td>1 - 3</td>
<td>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</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>(CAS No) 1310-58-3</td>
<td>0.405</td>
<td>Acute Tox. 3 (Oral), H301 Skin Corr. 1A, H314</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>(CAS No) 7664-38-2</td>
<td>0.4</td>
<td>Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314</td>
</tr>
<tr>
<td>1-Hydroxyethane-1,1-diphosphonic acid</td>
<td>(CAS No) 2809-21-4</td>
<td>0.3</td>
<td>Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>
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.

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.


7.3. Specific end use(s)
No additional information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>USA ACGIH</th>
<th>ACGIH Ceiling (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide (1310-58-3)</td>
<td></td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>Phosphoric acid (7664-38-2)</td>
<td>USA ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>USA ACGIH</td>
<td>ACGIH STEL (mg/m³)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 mg/m³</td>
</tr>
<tr>
<td></td>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
</tr>
<tr>
<td>Hydrogen peroxide (7722-84-1)</td>
<td>USA ACGIH</td>
<td>ACGIH TWA (ppm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 ppm</td>
</tr>
<tr>
<td></td>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 mg/m³</td>
</tr>
<tr>
<td></td>
<td>USA OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 ppm</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Emergency eye wash fountains and safety showers 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.

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.

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : LD50 > 5,000 kg/mg
### 1-Hydroxyethane-1,1-diphosphonic acid (2809-21-4)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>2400</td>
<td>mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 7940</td>
<td>mg/kg</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>500.00</td>
<td>mg/kg bodyweight</td>
</tr>
</tbody>
</table>

#### Potassium hydroxide (1310-58-3)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>214</td>
<td>mg/kg</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>500.00</td>
<td>mg/kg bodyweight</td>
</tr>
</tbody>
</table>

#### Phosphoric acid (7664-38-2)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1530</td>
<td>mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>2730</td>
<td>mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 850</td>
<td>mg/m³ (Exposure time: 1 h)</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>1530.00</td>
<td>mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>2730.00</td>
<td>mg/kg bodyweight</td>
</tr>
</tbody>
</table>

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>801</td>
<td>mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>2000</td>
<td>mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>2</td>
<td>g/m³ (Exposure time: 4 h)</td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>801.00</td>
<td>mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>2000.00</td>
<td>mg/kg bodyweight</td>
</tr>
<tr>
<td>ATE CLP (gases)</td>
<td>4500.00</td>
<td>ppmv/4h</td>
</tr>
<tr>
<td>ATE CLP (vapors)</td>
<td>2.000</td>
<td>mg/l/4h</td>
</tr>
<tr>
<td>ATE CLP (dust,mist)</td>
<td>2.000</td>
<td>mg/l/4h</td>
</tr>
<tr>
<td>IARC group</td>
<td>3</td>
<td>Not classifiable</td>
</tr>
</tbody>
</table>

#### Skin corrosion/irritation

Not classified

pH: 2.2 - 2.6 Approximately

#### Serious eye damage/irritation

Not classified

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

Aquatic Toxicity

LC50 > 750 mg/l

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
<td>868</td>
<td>mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>527</td>
<td>mg/l (Exposure time: 48 h - Species: Daphnia magna)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>360</td>
<td>mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])</td>
</tr>
<tr>
<td>NOEC (acute)</td>
<td>1000</td>
<td>mg/kg (Exposure time: 14 Days - Species: Eisenia fetida [soil dry weight])</td>
</tr>
</tbody>
</table>
## Hydrogen peroxide (7722-84-1)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
<td>16.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>18 - 32 mg/l (Exposure time: 48 h - Species: Daphnia magna [static])</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>18 - 56 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])</td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

**Revital-Ox® Resert™ - High Level Disinfectant**

Persistence and degradability Not established.

### 12.3. Bioaccumulative potential

**Revital-Ox® Resert™ - High Level Disinfectant**

Bioaccumulative potential Not established.

### 12.6. 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.

### 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 : 03/24/2016
Other information : None.

Full text of H-phrases: see section 16:

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

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