SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Trade name : ProKlenz® RESTORE High-Performance Acid-Based Cleaner
Product code : 1423

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

1.2.1. Relevant identified uses

Industrial/Professional use spec : For professional use only
Use of the substance/mixture : Stainless Steel Corrosion Remediation

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: 1-800-444-9009 (Customer Service-Scientific Products)
US Emergency Telephone No.1-314-535-1395 (STERIS); 1-800-424-9300 (CHEMTREC)

Supplier:
STERIS Ireland Limited
IDA Business and Technology Park
Tullamore
County Offaly
R35 X865
Ireland.
Product/Technical Information Phone No: +44 (0) 116 276 8636
Email: asksteris_msd@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]

Met. Corr. 1 H290
Flam. Liq. 4 H227
Skin Corr. 1B H314
Eye Dam. 1 H318

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

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

Hazard pictograms (GHS-US) : GHS05

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) : H227- Combustible liquid
H290- May be corrosive to metals
H314 - Causes severe skin burns and eye damage.

Precautionary statements (GHS-US) : P210 – Keep away from flames and hot surfaces. No smoking.
P234 – Keep only in original container.
P260 - Do not breathe mist, spray, vapours
P264 - Wash hands thoroughly after handling
P280 - Wear protective gloves/protective clothing and eye/face protection.
**ProKlenz® RESTORE**

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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
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
P310 – Immediately call a POISON CENTER or the competent authority to specify the appropriate source of emergency medical advice
P363 -Wash contaminated clothing before reuse
P390 – Absorb spillage to prevent material damage.
P403+P235 – Store in a well-ventilated place. Keep cool.
P405 -Store locked up
P501 – Dispose of contents/container in accordance with regional regulations

---

### 2.3. Other hazards

No additional information 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>1-Hydroxyethane-1, 1-diphosphonic acid</td>
<td>(CAS No) 2809-21-4 (EC no) 220-552-8</td>
<td>15 – 20</td>
<td>Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Chronic 4, H413</td>
</tr>
<tr>
<td>Oxalic acid</td>
<td>(CAS No) 144-82-7 (EC no) 205-634-3 (EC Index no) 607-006-00-8</td>
<td>1 - 5</td>
<td>Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318</td>
</tr>
<tr>
<td>1-Amino-2-propanol</td>
<td>(CAS No) 78-96-6 (EC no) 201-162-7 (EC Index no) 603-082-00-1</td>
<td>5 – 10</td>
<td>Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>

Full text of 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. If you feel unwell, seek medical advice (show the label where possible).

**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. Get medical attention.

**First-aid measures after skin contact**

Immediately flush skin with plenty of water for at least 15 minutes. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention.

**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 and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately get medical attention.

**First-aid measures after ingestion**

If victim completely conscious/alert. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

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

**Symptoms/injuries**

Symptoms may be delayed. Corrosive to eyes and skin.

**Symptoms/injuries after inhalation**

Irritating to respiratory tract, if inhaled.

**Symptoms/injuries after skin contact**

Corrosive to eyes and skin.

**Symptoms/injuries after eye contact**

Causes serious eye damage.

**Symptoms/injuries after ingestion**

Likely to be irritating to the gastrointestinal tract, if ingested

---

### 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**


**Unsuitable extinguishing media**

None known.

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

**Hazardous decomposition products in case of fire**

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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: Use self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.
Other information: Not known.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
General measures: Do not breathe fumes, vapors. Avoid contact with skin, eyes and clothes.

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: Stop leak 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.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Absorb spillage to prevent material damage. Collect spillage. Comply with applicable local, national and international regulation.

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
Additional hazards when processed: May be corrosive to metals.
Precautions for safe handling: Product for industrial use only. Read label before use. Provide good ventilation in process area to prevent formation of vapor. Avoid all eye and skin contact and do not breathe vapor and mist. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Hygiene measures: Take care for general good hygiene and housekeeping. Wash hands thoroughly after handling. 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.
Storage conditions: Keep only in the original container in a cool, well ventilated place. Keep container closed when not in use.
Storage area: Store in dry, cool, well-ventilated area.
Special rules on packaging: Correctly labelled.
Packaging materials: Keep only in the original container.

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

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th>Oxalic acid (144-62-7)</th>
<th>ACGIH TWA (mg/m³)</th>
<th>USA OSHA PEL (TWA) (mg/m³)</th>
<th>United Kingdom WEL TWA (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
<td>ACGIH TWA</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA ACGIH</td>
<td>ACGIH STEL</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA OSHA</td>
<td>OSHA PEL (TWA)</td>
<td>1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Italy - Portugal - USA</td>
<td>ACGIH TWA</td>
<td>1 mg/m³</td>
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</tr>
<tr>
<td>Italy - Portugal - USA</td>
<td>ACGIH STEL</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA</td>
<td>1 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

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**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.

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: Wear rubber gloves.

Eye protection: Wear chemical splash goggle.

Skin and body protection: Wear suitable protective clothing. Wear long sleeves.

Respiratory protection: Work in well-ventilated zones or use proper respiratory protection.

Other information: Do not eat, drink or smoke during use.

---

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

**Physical state**: Liquid

**Appearance**: Clear

**Color**: Colorless

**Odor**: No data available

**Odor threshold**: No data available

**pH (1% w/w)**: 2.2

**pH (conc.)**: 1.4

**Relative evaporation rate (butylacetate=1)**: No data available

**Melting point**: No data available

**Freezing point**: No data available

**Boiling point**: No data available

**Flash point**: > 180°F

**Self 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**: ca. 1.123 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.

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**10.1. Reactivity**

No additional information available.

**10.2. Chemical stability**

Stable under normal conditions of use.
10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Extremely high or low temperatures.

10.5. Incompatible materials
Strong oxidizers. Alkalis.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity:

<table>
<thead>
<tr>
<th>ProKlenz® RESTORE High Performance Acid-Based Cleaner</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat (estimated)</td>
</tr>
<tr>
<td>LD50 dermal rabbit (estimated)</td>
</tr>
</tbody>
</table>

1-<span class="caps">-</span>Hydroxyethane-<span class="caps">, 1-diphosphonic acid (2809-21-4)</span>
-<span class="caps">-</span>LD50 oral rat 2400 mg/kg
-<span class="caps">-</span>LD50 dermal rabbit >6000 mg/kg

- Skin corrosion/irritation: Causes skin irritation. (pH: 9.2 – 9.8)
- Serious Eye Damage/Irritation: Causes serious eye irritation. (pH: 9.2 – 9.8)

Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Teratogenicity: No data available
Carcinogenicity: Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.
Symptoms/Injuries After Skin Contact: Causes skin irritation.
Symptoms/Injuries After Eye Contact: Causes serious eye irritation.
Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Oxalic acid (144-82-7)
-<span class="caps">-</span>LD50 oral rat 7500 mg/kg
-<span class="caps">-</span>LD50 dermal rat 20000 mg/kg
-<span class="caps">-</span>ATE (oral) 500.000 mg/kg bodyweight
-<span class="caps">-</span>ATE (dermal) 1100.000 mg/kg bodyweight

- Skin corrosion/irritation: Causes severe skin burns and eye damage
  pH: 1.2 Approximately
- Serious eye damage/irritation: Causes serious eye damage
  pH: 1.2 Approximately
- Respiratory or skin sensitisation: Not classified
- Germ cell mutagenicity: Not classified
- Carcinogenicity: Not classified.

1-Amino-<span class="caps">-</span>2-propanol (78-96-6)
-<span class="caps">-</span>LD50 oral rat 2813 mg/kg
-<span class="caps">-</span>LD50 dermal rabbit 1851 mg/kg

- Skin corrosion/irritation: Brief contact may cause skin burns.
- Serious Eye Damage/Irritation: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.
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Respiratory or Skin Sensitization: Not classified
Mutagenicity: Not classified
Teratogenicity: No data available
Carcinogenicity: Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Aspiration Hazard: Not classified

Symptoms/injuries after skin contact: Adverse symptoms include pain, severe local redness and tissue damage.
Symptoms/injuries after eye contact: Chemical burns may occur.

SECTION 12: Ecological information

12.1. Toxicity
ProKlenz® RESTORE High Performance Acid-Based Cleaner
LC50 fishes >750 mg/l (Exposure time: 96 h - Species: Fathead Minnow)

1-Hydroxyethane-1, 1-diphosphonic acid (2809-21-4)
LC50 fishes 368 mg/l (Exposure time: 96 h - Species: Rainbow trout, Donaldson trout)
LC50 fishes 868 mg/l (Exposure time: 96 h - Species: Bluegill)
EC50 Daphnia 1 527 mg/l (Exposure time: 72 h - Species: Daphnia magna)

1-Amino-2-propanol (78-96-6)
EC50 Daphnia 1 109 mg/l (Exposure time: 48 h – Species: Daphnia magna)
LC50 fishes 215 – 464 mg/l (Exposure time: 96 h – Species: Leuciscus idus [Static])
ErC50 algae 32.7 mg/l (Exposure time: 72 h – Species: Scenedesmus sp. [Static])

Oxalic acid (144-62-7)
EC50 Daphnia 1 125 - 150 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

12.2. Persistence and degradability
ProKlenz® RESTORE High Performance Acid-Based Cleaner
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
1-Hydroxyethane-1, 1-diphosphonic acid (2809-21-4)
Log Pow -3.5
1-Amino-2-propanol (78-96-6)
Log Pow -0.93 (at 23 °C)
Oxalic acid (144-62-7)
BCF fish 1 (no bioaccumulation)
Log Pow -0.81 (at 30 °C)

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: Dispose in a safe manner in accordance with local/national regulations.
Additional information: Unused product: Hazardous waste (corrosive) based on pH.
Ecology - waste materials: Avoid release to the environment.
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SECTION 14: Transport information

14.1. UN number
UN-No.(DOT) : 3265
DOT NA no. : UN3265

14.2. UN proper shipping name
DOT Proper Shipping Name : UN3265, Corrosive Liquid. Acidic, Organic, N.O.S. (Phosphonic Acid Solution), 8, PG III
Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT) : 8 - Corrosive substances.

DOT Symbols : G - Identifies PSN requiring a technical name
Packing group (DOT) : III - Minor Danger

14.3. Additional information
Other information : Corrosive.
Special transport precautions : 4 x 1 gal package not approved for air shipment.

Overland transport
Packing group (ADR) : III
Class (ADR) : 8 - Corrosive substances.
Hazard identification number (Kemler No.) : 80
Classification code (ADR) : C3
Danger labels (ADR) : 8 - Corrosive substances.

Orange plates : 80
3265
Tunnel restriction code : E
Excepted quantities (ADR) : E1

Transport by sea
DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow “clear of living quarters”

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L package not approved for air
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 4 x 1 gal package not approved for air shipment

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. US Federal regulations
1. Hydroxyethane-1, 1-diphosphonic acid (2809-21-4)
   Listed on the United States TSCA (Toxic Substances Control Act) inventory or exempted

2. Amino-2-propanol (78-96-6)
   Listed on the United States TSCA (Toxic Substances Control Act) inventory

3. Oxalic acid (144-62-7)
   Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.3. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision Date: 03/18/2019

Sources of Key data:

Other information: None.

Full text of H- and EUH-phrases:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation, Category 1</td>
</tr>
<tr>
<td>Met. Corr. 1</td>
<td>Corrosive to metals, Category 1</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation Category 1B</td>
</tr>
<tr>
<td>Flamm. Liq. 4</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>H227</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>H290</td>
<td>May be corrosive to metals</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H413</td>
<td>May cause long lasting harmful effects to aquatic life</td>
</tr>
</tbody>
</table>

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.