

## 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\_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]

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

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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

Name	Product identifier	%	GHS-US classification
1-Hydroxyethane-1, 1-diphosphonic acid	(CAS No) 2809-21-4 (EC no) 220-552-8	15 – 20	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Chronic 4, H413
Oxalic acid	(CAS No) 144-62-7 (EC no) 205-634-3 (EC Index no) 607-006-00-8	1 - 5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Eye Dam. 1, H318
1-Amino-2-propanol	(CAS No) 78-96-6 (EC no) 201-162-7 (EC Index no) 603-082-00-1	5 – 10	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318

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	: Use extinguishing media appropriate for surrounding fire. Foam. Dry powder. Carbon dioxide. Sand.
Unsuitable extinguishing media	: None known.

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

Hazardous decomposition products in case of fire	: Thermal decomposition generates: Fume. Carbon monoxide. Carbon dioxide. Phosphorous oxides, phosphine.
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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.
- Incompatible materials : Strong oxidizing agents. Alkalis.
- 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

Oxalic acid (144-62-7)		
USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
USA ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
USA OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>
Italy - Portugal - USA ACGIH	ACGIH STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup>
United Kingdom	WEL TWA (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup>

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#### Oxalic acid (144-62-7)

United Kingdom

WEL STEL (mg/m<sup>3</sup>)

2 mg/m<sup>3</sup>

#### 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.

### SECTION 9: Physical and chemical properties

#### 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.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available.

#### 10.2. Chemical stability

Stable under normal conditions of use.

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#### 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

Thermal decomposition generates: Corrosive vapours. Phosphorous oxide. Fume. Carbon monoxide. Carbon dioxide. May release phosphine under certain conditions.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity:

ProKlenz® RESTORE High Performance Acid-Based Cleaner	
LD50 oral rat (estimated)	>5000 mg/kg
LD50 dermal rabbit (estimated)	>5000 mg/kg

1-Hydroxyethane-1, 1-diphosphonic acid (2809-21-4)	
LD50 oral rat	2400 mg/kg
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 (144-62-7)	
LD50 oral rat	7500 mg/kg
LD50 dermal rat	20000 mg/kg
ATE (oral)	500.000 mg/kg bodyweight
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  
Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified  
Based on available data, the classification criteria are not met

Carcinogenicity : Not classified.

1-Amino-2-propanol (78-96-6)	
LD50 oral rat	2813 mg/kg
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)
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#### 1-Hydroxyethane-1, 1-diphosphonic acid (2809-21-4)

LC50 fishes	368 mg/l (Exposure time: 96 h - Species: Rainbow trout, Donaldson trout)
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LC50 fishes	868 mg/l (Exposure time: 96 h - Species: Bluegill)
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EC50 Daphnia 1	527 mg/l (Exposure time: 72 h - Species: Daphnia magna)
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#### 1-Amino-2-propanol (78-96-6)

EC50 Daphnia 1	109 mg/l (Exposure time: 48 h - Species: Daphnia magna)
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LC50 fishes	215 - 464 mg/l (Exposure time: 96 h - Species: Leuciscus idus [Static])
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ErC50 algae	32.7 mg/l (Exposure time: 72 h - Species: Scenedesmus sp. [Static])
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#### Oxalic acid (144-62-7)

EC50 Daphnia 1	125 - 150 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
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### 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.
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### 12.3. Bioaccumulative potential

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

Log Pow	-3.5
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#### 1-Amino-2-propanol (78-96-6)

Log Pow	-0.93 (at 23 °C)
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#### Oxalic acid (144-62-7)

BCF fish 1	(no bioaccumulation)
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Log Pow	-0.81 (at 30 °C)
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### 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

In accordance with DOT

##### 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 : 

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

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

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

#### 1-Amino-2-propanol (78-96-6)

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

#### 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 : 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- and EUH-phrases:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Met. Corr. 1	Corrosive to metals, Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Flam. Liq. 4	Combustible liquid
H227	Combustible liquid
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H413	May cause long lasting harmful effects to aquatic life

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.*