

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

1.1. Product identifier

Product form : Mixture
Trade name : Revital-Ox™ 2X Concentrate Enzymatic Detergent
Product code : 2D99

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

Use of the substance/mixture : Enzymatic Detergent

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)

1.4. Emergency telephone number

Emergency number : +44 (0) 1895 622 639

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2 H315
Eye Dam. 2B H320
Resp. Sens. 1 H334
STOT (SE) 3 H335
Acute Tox Oral 5 H303
Acute Tox Derm 5 H313
Acute Tox Inhalation 5 H333

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS07

GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :

- H303 - May be harmful if swallowed
- H313 - May be harmful in contact with skin
- H315 - Causes skin irritation
- H320 - Causes eye irritation
- H333 - May be harmful if inhaled
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

- P261 - Avoid breathing mist, spray, vapours
- P264 - Wash hands thoroughly after handling
- P271 - Use in a well-ventilated area
- P280 - Wear protective gloves/protective clothing and eye/face protection
- P284 - Wear respiratory protection
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position 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
- P312 - Call a POISON CENTER/doctor if you feel unwell
- P332+P313 - If skin irritation occurs: Get medical advice/attention
- P337+P313 - If irritation persists: Get medical advice/attention
- P362+P364 - Take off contaminated clothing and wash it before reuse
- P501 - Dispose of contents/container to comply with applicable local, national and international regulation

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Citric acid	(CAS No) 77-92-9	1 - 5	Eye Irrit. 2A, H319
Triethanolamine	(CAS No) 102-71-6	1 - 5	Eye Irrit. 2A, H319
Ethanolamine	(CAS No) 141-43-5	1 - 5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1B, H314 STOT SE 3, H335
Ethoxylated coconut oil alkyl amine	(CAS No) 61791-14-8	1 - 5	Not classified
N,N-Dimethyloctadecylamine oxide	(CAS No) 2571-88-2	1 - 2	Skin Irrit. 2, H315 Eye Dam. 1, H318
Subtilisins (proteolytic enzymes)	(CAS No) 9014-01-1	0.1 - 1	Skin Irrit. 2, H315 Eye Dam. 1, H318 Resp. Sens. 1, H334 STOT SE 3, H335
Glycerine	(CAS No) 56-81-5	1 - 5	Not classified

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. Give water or milk if the person is fully conscious

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

Symptoms/injuries	: Causes eye irritation. May be harmful if inhaled
Symptoms/injuries after inhalation	: In case of repeated or prolonged exposure : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation
Symptoms/injuries after skin contact	: Causes skin irritation
Symptoms/injuries after eye contact	: Causes eye irritation
Symptoms/injuries after ingestion	: Can occur: gastrointestinal disturbance

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
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5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions	: Exercise caution when fighting any chemical fire
Protective equipment for firefighters	: Use self-contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection. Wear a self contained breathing apparatus
Other information	: Hazardous decomposition products may be released during prolonged heating like smokes, carbon monoxide and dioxide, nitrogen oxides (NOx)

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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 : Comply with applicable local, national and international regulation. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. Residue may be washed down with water. Product may be flushed to a sanitary sewer with copious amounts of water, if in accordance with local, state or national legislation

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 hospital and professional use only. Read label before use. Provide good ventilation in process area to prevent formation of vapour. Avoid all eye and skin contact and do not breathe vapour 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

Storage temperature : < 32 °C (< 90 °F)

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

Triethanolamine (102-71-6)		
USA ACGIH	ACGIH TWA (mg/m³)	5 mg/m³
Ethanolamine (141-43-5)		
USA ACGIH	ACGIH TWA (ppm)	3 ppm
USA ACGIH	ACGIH STEL (ppm)	6 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	6 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	3 ppm
Subtilisins (proteolytic enzymes) (9014-01-1)		
USA ACGIH	ACGIH Ceiling (mg/m³)	0.00006 mg/m³

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

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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 or latex-free gloves
Eye protection : Safety glasses
Skin and body protection : Wear suitable protective clothing
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 : Slightly hazy
Colour : Yellow to amber
Odour : Floral odor
Odour threshold : No data available
pH : 7.5 – 8.1
pH solution : 7 - 9 (1% Solution)
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 : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Density : 1.059 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

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur

10.4. Conditions to avoid

Heat. Light

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

10.5. Incompatible materials

Strong oxidizers

10.6. Hazardous decomposition products

Hazardous decomposition products may be released during prolonged heating like smokes, carbon monoxide and dioxide. Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Revital-Ox™ 2X Concentrate Enzymatic Detergent	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
Triethanolamine (102-71-6)	
LD50 oral rat	4190 mg/kg
LD50 dermal rabbit	> 20 ml/kg
ATE (oral)	4190,000 mg/kg bodyweight
Ethoxylated coconut oil alkyl amine (61791-14-8)	
ATE (oral)	500,000 mg/kg bodyweight
Ethanolamine (141-43-5)	
LD50 oral rat	1720 mg/kg
LD50 dermal rabbit	1 ml/kg
ATE (oral)	500,000 mg/kg bodyweight
ATE (dermal)	1100,000 mg/kg bodyweight
ATE (dust,mist)	1,500 mg/l/4h
Tolyltriazole, sodium salt (64665-57-2)	
ATE (oral)	500,000 mg/kg bodyweight
1-Octadecanamine, N,N-dimethyl- (124-28-7)	
LD50 oral rat	2116 mg/kg
LD50 dermal rabbit	4.29 ml/kg
ATE (oral)	500,000 mg/kg bodyweight

Skin corrosion/irritation : Causes skin irritation
pH: 7.5 – 8.1

Serious eye damage/irritation : Causes serious eye damage
pH: 7.5 – 8.1

Respiratory or skin sensitisation : May cause allergy or asthma symptoms or breathing difficulties if inhaled

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

Carcinogenicity : Not classified
Based on available data, the classification criteria are not met

Triethanolamine (102-71-6)	
IARC group	3 - Not classifiable
National Toxicology Program (NTP) Status	1 - Evidence of Carcinogenicity

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

Ethanolamine (141-43-5)	
NOAEL (oral,rat,90 days)	>= mg/kg bodyweight/day

Aspiration hazard : Not classified
Based on available data, the classification criteria are not met

Potential Adverse human health effects and symptoms : Harmful if swallowed

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Symptoms/injuries after inhalation	: In case of repeated or prolonged exposure : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation
Symptoms/injuries after skin contact	: Irritating to eyes and skin
Symptoms/injuries after eye contact	: Causes eye irritation
Symptoms/injuries after ingestion	: Can occur: gastrointestinal disturbance

SECTION 12: Ecological information

12.1. Toxicity

Citric acid (77-92-9)	
LC50 fishes 1	1516 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [Static])
EC50 Daphnia 1	120 mg/l (Exposure time: 72 h - Species: Daphnia magna)
Triethanolamine (102-71-6)	
LC50 fishes 1	10600 - 13000 mg/l (Exposure time: 96 h - Species: Pimephales promelas [Flow-through])
EC50 other aquatic organisms 1	216 mg/l (Exposure time: 72 h - Species: Desmodesmus subspicatus)
LC50 fish 2	> 1000 mg/l (Exposure time: 96 h - Species: Pimephales promelas [Static])
EC50 other aquatic organisms 2	169 mg/l (Exposure time: 96 h - Species: Desmodesmus subspicatus)
Ethanolamine (141-43-5)	
LC50 fishes 1	227 mg/l (Exposure time: 96 h - Species: Pimephales promelas [Flow-through])
EC50 Daphnia 1	65 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	15 mg/l (Exposure time: 72 h - Species: Desmodesmus subspicatus)
LC50 fish 2	3684 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [Static])

12.2. Persistence and degradability

Revital-Ox™ 2X Concentrate Enzymatic Detergent	
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™ 2X Concentrate Enzymatic Detergent	
Bioaccumulative potential	Not established
Citric acid (77-92-9)	
Log Pow	-1.72 (at 20 °C)
Triethanolamine (102-71-6)	
BCF fish 1	< 3.9
Log Pow	-2.53
Ethanolamine (141-43-5)	
Log Pow	-1.91 (at 25 °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. Do not re-use empty containers
Additional information	: Empty containers should be thoroughly rinsed with large quantities of clean water. Empty containers should be taken for recycling, recovery or waste in accordance with local regulation. Ensure all national/local regulations are observed
Ecology - waste materials	: Avoid release to the environment

SECTION 14: Transport information

In accordance with DOT

No dangerous good in sense of transport regulations

Additional information

Other information : No supplementary information available

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

ADR

Transport document description : In accordance with DOT
No dangerous good in sense of transport regulations

Transport by sea

In accordance with DOT
No dangerous good in sense of transport regulations

Air transport

In accordance with DOT
No dangerous good in sense of transport regulations

SECTION 15: Regulatory information

15.1. US Federal regulations

Citric acid (77-92-9)

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

Triethanolamine (102-71-6)

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

Ethoxylated coconut oil alkyl amine (61791-14-8)

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

Ethanolamine (141-43-5)

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

Subtilisins (proteolytic enzymes) (9014-01-1)

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

Glycerine (56-81-5)

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

15.3. US State regulations

This product contains a chemical known to the State of California to cause cancer.

SECTION 16: Other information

Other information : None

Full text of H-phrases: see section 16:

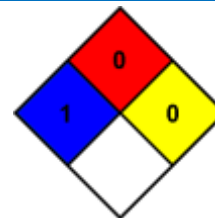
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Flam. Liq. 4	Flammable liquids, Category 4
Resp. Sens. 1	Sensitisation — Respiratory, 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
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
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation

Revital-Ox™ 2X Concentrate Enzymatic Detergent

Safety Data Sheet

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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	: 0 - 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 or recommendations are not followed.