Hydrogen Peroxide
Safety Data Sheet

Section 1. Identification of the material and the supplier

Product:	**Hydrogen Peroxide (%59±0.5 H2O2)**
Product Use:	For use only with Stericool A110S/A110D/A160S/A160D/A110SF/A110DF/A160SF/A160DF devices.
Cartridge Specifications:	29.8ml, 240ml and 450ml HDPE/PE containers with air permeable cap and safety valve. (ST030, ST240 and ST450 Stericool hydrogen peroxide sterilant agent)
Restriction of Use:	Refer to Section 15
Australian Distributor:	**Getinge Australia Pty Ltd**
Address:	Level 2, 4 Talavera Road Macquarie Park NSW 2113 PO Box 50 Bulimba, QLD, 4171 Australia
Telephone:	+61 7 3399 3311
Emergency:	+61 2 8014 4558 or **131126** (Poisons Information Centre)
New Zealand Distributor:	**Getinge Australia (New Zealand Branch)**
Address:	Level 2, Building B Millennium Centre 600 Great South Road Ellerslie Auckland 1051 New Zealand
Telephone:	+64 9 272 9039
Emergency Telephone:	**+64 9 272 9039 or 0800 764 766 (National Poison Centre)**
Date of SDS Preparation:	23 November 2018

Section 2. Hazards Identification

Australia:
Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

New Zealand:
This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval Code: HSR001326

Pictograms

Oxidiser Toxic Corrosive

Signal Word: **DANGER**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
5.1.1B	H272	May intensify fire oxidiser.	Ox. Liq. 2
6.1D (oral)	H302	Harmful if swallowed.	Acute Tox. 4
6.9B	H373	May cause damage to organs through prolonged or repeated exposure.	STOT RE 2
8.2B	H314	Causes severe skin burns and eye damage.	Skin Corr. 1B
8.3A	H318	Causes serious eye damage.	Eye Corr. 1
9.1D	H401	Toxic to aquatic life.	Aquatic Acute 2
9.3C	H433	Harmful to terrestrial vertebrates.	-

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat, sparks, open flames or hot surfaces. No smoking.
P220	Keep or store away from clothing or combustible materials.
P221	Take any precaution to avoid mixing with combustibles or incompatible materials.
P260	Do not breathe fumes, vapours or spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective clothing as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P310	Immediately call a POISON CENTER or doctor/physician.
P363	Wash contaminated clothing before reuse.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P301 + P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove 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.
P370 + P378	In case of fire: Use water or water fog for extinction.

Storage Code	Storage Statement
P405	Store locked up.

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Hydrogen Peroxide	60%	7722-84-1
Non hazardous	To bal	

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult with an ophthalmologist immediately in all cases.
If on Skin	Remove/Take off immediately all contaminated clothing and wash before reuse. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.
If Swallowed	Do not eat, drink or smoke when using this product. Never give anything by mouth to an unconscious person. If victim is fully conscious person, give a cup full of water. IF SWALLOWED: rinse mouth. Do not induce vomiting. Call a POISON CENTER/doctor if you feel unwell.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Ingestion:	Harmful if swallowed.
Inhalation:	Not applicable.
Skin:	Causes skin burns.
Eye:	Causes serious eye damage.
Chronic:	May cause damage to organs through prolonged or repeated exposure.

Treatment: Treat symptomatically.

Section 5. Fire Fighting Measures

Hazard Type	Oxidiser. Non combustible
Hazards from combustion products	On decomposition product releases oxygen which may intensify fire.
Suitable Extinguishing media	Water or water fog. Do not use any other substance. Do not use carbon dioxide or dry chemical fire extinguishers.
Precautions for firefighters and special protective clothing	Use water spray to cool fire exposed surfaces and protect personnel. As in any fire, wear full protective clothing (rubber suit and boots including splash goggles and self-contained breathing apparatus). In case of fire, use water or water fog fire extinguishers only.Evacuate area. Fight fire remotely due to the risk of explosion. Closed containers of this material may explode when subjected to heat from surrounding fire. Keep product and empty container away from heat and sources of ignition. 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. May react with soft metals to evolve flammable oxygen gas. Clothing and other combustible materials that have come into contact with hydrogen peroxide must be immediately and thoroughly washed with water. If hydrogen peroxide is allowed to dry in the materials, spontaneous combustion can occur and a fire may result.
HAZCHEM CODE	**2P**

Section 6. Accidental Release Measures

Personal precautions:
Evacuate personnel to safe areas. Avoid contact skin, eyes, clothing. Eliminate all sources of ignition and remove combustible materials. Keep away from incompatible products. Wear personal protective equipment. Drying of this product on clothing or combustible materials may cause fire.

Environmental precautions:
Ensure suitable personal protection during removal of spillages. Spills should be contained and may be cautiously neutralized with sodium metabisulfite or sodium sulfite (1.0 lb of either to 100 mL peroxide), or absorbed on appropriate material and placed in a container for disposal. Do not use
sawdust or cellulose material as an absorbent. Flush spill site with large quantities of water (20 parts water to 1 part hydrogen peroxide) to a sanitary sewer. Washings should be prevented from entering surface water/storm drains. Local regulations should be observed.

Spill and Disposal procedures:
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.
Dispose of waste safely, according to Local Council regulations.

Section 7. Handling and Storage

Precautions for Handling:
- Keep out of reach of children.
- Read label before use.
- Keep away from heat, sparks, open flames or hot surfaces. No smoking.
- Keep or store away from clothing or combustible materials.
- Take any precaution to avoid mixing with combustibles or incompatible materials.
- Do not breathe fumes, vapours or spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid release to the environment.
- Wear chemical splash-type monogoggles and full-face shield, impervious clothing, such as rubber, PVC, etc., and rubber or neoprene gloves and shoes.
- Avoid cotton, wool and leather.
- Avoid excessive heat and contamination.
- DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
- Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture.

Precautions for Storage:
- Keep away from children.
- Store locked up.
- Keep at temperature less than 60°C.
- Keep only in the original container.
- Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner.
- Never return unused hydrogen peroxide to original container, empty drums should be triple rinsed with water before discarding.
- Store your Stericool H2O2 Cartridges in cool, dry, well ventilated area, out of direct sunlight and away from combustibles.
- Keep away from incompatible products, combustible materials and heat.
- Store separate from acids, alkalies, reducing agents, and combustibles.
- Regularly check the condition and temperature of the containers.
- Keep in original packaging, tightly closed.
- Rooms or warehouses should be made of non-combustible materials with impermeable floors.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³
Hydrogen peroxide [7722-84-1]	1	1.4		

Workplace Exposure Standard – Time Weighted Average (WES-TWA).The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2017 9TH EDITION.

Engineering Controls

Ensure adequate ventilation. Emergency eye wash fountains and safety showers should be available in immediate vicinity of any potential exposure. Local exhaust ventilation is recommended to maintain vapor level below the threshold limit value (TLV). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Personal Protection Equipment

Eyes & face	Chemical splash goggles, face-shield. Use chemical splash-type monogoggles and a full- face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.
Hands and Skin	Wear gloves made from nitrile, neoprene or vinyl. Chemical resistance lab coat and closed toe shoes.
Respiratory	None required for routine use. In emergency situations where established limits are exceeded, it is recommended to use SCBA (Self-Contained Breathing Apparatus).
General	Avoid contact with skin and eyes. When using do not eat or drink.

Section 9 Physical and Chemical Properties

Appearance	Clear, colorless liquid
Odour	Odourless
Odour Threshold	Not available
pH @ 20^{0}C	<3
Boiling Point	119 °C (H2O2 59 %)
Melting Point	-56 °C (H2O2 59 %)
Freezing Point	Not available
Flash Point	Not available
Flammability	Not available
Upper and Lower Explosive Limits	Not available

Vapour Pressure	18 mmHg (68 °F (20 °C) 214 Pa (Pure substance) temperature: 20 °C (68 °F) 72 mbar (H2O2 50 %) Remarks: total pressure (H2O2 +H2O) Temperature: 50 °C 1 mbar (H2O2 50 %) Remarks: total pressure (H2O2) Temperature: 30 °C
Relative Vapour Density	1.0 (Heavier than air)
Relative Density	1.24 (H2O2 59 %)
Specific Gravity	1.2
Water Solubility:	Soluble in water
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity, kinematic	1.17 cP @ 20 °C
Viscosity, dynamic	No information available – (1.90 mPa.s (0 °C))

Section 10. Stability and Reactivity

Stability of Substance	Potential for exothermic hazard. This material is chemically stable under normal and anticipated storage, handling and processing conditions. Decomposes on heating.
Possible hazards reactions	Contact with organic substances may cause fire or explosion. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.
Conditions to Avoid	Contamination. To avoid thermal decomposition, do not overheat. Exposure to UV-rays. pH variations. Material decomposes with the potential to produce a rupture of unvented closed containers.
Incompatible Materials	Acids- Base- Metal- Salts of metals- Reducing agent- Organic materials- Metallic oxides- Dusts- Flammable materials((e.g., wood, sawdust, Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with , metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.
Hazardous Decomposition Products	Oxygen -The release of other hazardous decomposition products is possible. -Oxygen which supports combustion. Liable to produce overpressure in container. -This material decomposes if contaminated, causing fire and possible explosions. Oxygen can be liberated at temperatures above ambient.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Harmful if swallowed. Causes burns to the gastrointestinal tract. 50% hydrogen peroxide: > 225 mg/kg (rat) [FMC Study Number: I86-914]
Dermal	Not applicable.
Inhalation	Not applicable. Vapors cause severe irritation to the nose, throat and lungs. May result in coughing and shortness of breath. 50% hydrogen peroxide: LC50 > 170 mg/m3 (rat) [FMC Study Number: I89-1080]
Eye	Causes serious eye damage Corrosive. (Rabbit) (35 %) (aqueous solution)
Skin	Causes skin burns. Rabbit, irritant (skin) (H2O2 < 50 %) Rabbit, corrosive effects, 1 h (H2O2 >= 50 %) Causes mild skin irritation. (Rabbit) Irritation Index: 1.6 / 8. (35 %) (aqueous solution)

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Causes damage to organs (oral and inhalation) through repeated or prolonged exposure.

Section 12. Ecotoxicological Information

New Zealand:
HSNO Classes: 9.1D = Toxic to aquatic life.
9.3C = Harmful to terrestrial vertebrates.

Persistence and degradability	Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.
Bioaccumulation	No data available.
Mobility in Soil	No data available.
Other adverse effects	No data available.
Precautions	Do not allow to enter waterways.

Aquatic toxicity data:
Harmful, fishes, Pimephales promelas (fathead minnow); LC50, 96 h, 16.4 mh/l;
Fishes, Pimephales promelas, NOEC, 96 h 5 mg/l
Aquatic invertebrates: -
Toxic. Crustaceans, Daphnia pulex (Water flea) EC50, 48 h, 2.4 mg/l;- Crustaceans, Daphnia pulex, NOEC, 48 h, 1 mg/l; - Fish Leuciscus idus, 72 h LC50, 35 mg/L
Chronic toxicity to aquatic invertebrates:
Harmful. Daphnia magna (Water flea), 21 d NOEC (reproduction), 0.63 mg/l

Section 13. Disposal Considerations

Waste from residues / unused products: In accordance with local and national regulations. Small quantities: Dilute with plenty of water. After this treatment, the product can be discharged into the sewer. Large quantities: Contact manufacturer. Disposed as waste water, in compliance with local regulations. Dilution with water is the preferred method of for disposal. Take appropriate measures to prevent release to the environment.

Packaging treatment: Rinse the empty containers with plenty of water and treat the effluent in the same way as waste. Do not rinse the dedicated containers. The empty and clean containers are to be reused in conformity with regulations. Dispose of in accordance with local regulations. Drums Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original container.

Precautions and methods to avoid: Do not allow to enter waterways.

Section 14 Transport Information

Australia:
This product is classified as a Dangerous Good for transport in Australian Dangerous Goods Code ADG7

New Zealand:
This product is classified as a Dangerous Good for transport in NZ: NZS 5433:2012

Road, Rail, Sea and Air Transport

UN No	2014
Class - Primary	5.1
Sub-sidiary risk	8
Packing Group	II
Proper Shipping Name	**HYDROGEN PEROXIDE, AQUEOUS SOLUTION**
Marine Pollutant	No
Special Provisions-Limited Quantities	If the product's individual container is below 1L, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Section 15 Regulatory Information

Australia:
Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classified as a **Schedule 6 Poison** according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

New Zealand:
This substance is classified hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval No: HSR001326

HSNO Classification: 5.1.1B, 6.1D(oral), 6.9B, 8.2B, 8.3A, 9.1D, 9.3C

HSW (HS) Regulations 2017 and EPA Notices	**Trigger Quantity**
Certified Handler	Not required
Location Certificate	250L (8.2B)
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	250L (8.2B)
Emergency Response Plan	500L (5.1.1B)
Secondary Containment	500L (5.1.1B)
Restriction of Use	No person may use this substance described as a pesticide or a veterinary medicine. However, this substance may be used in the formulation of a pesticide or a veterinary medicine. For the purpose of this control— (a) pesticide includes, but is not limited to, a product intended for use as an acaricide, antifouling paint, avicide, fumigant, fungicide, insecticide, herbicide, miticide, molluscicide, piscicide, timber treatment preservative or vertebrate toxic agent (b) veterinary medicine has the same meaning given to it in the Agricultural Compounds and Veterinary Medicines Act 1997.

Section 16 Other Information

Glossary

EC_{50}	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC_{50}	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD_{50}	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

Australia:

1. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
2. Standard for the Uniform Scheduling of Medicines and Poisons.
3. Australian Code for the Transport of Dangerous Goods by Road & Rail.
4. Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
5. Workplace exposure standards for airborne contaminants, Safe work Australia.
6. American Conference of Industrial Hygienists (ACGIH).
7. Globally Harmonised System of classification and labelling of chemicals.

New Zealand:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012
5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

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The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the Australian Manufacturer or New Zealand distributor, if further information is required.

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