STERIS

SAFETY DATA SHEET

1. Identification of the Substance and Company

Vaprox HC Hydrogen Peroxide Sterilant (59%)

Use: For use with STERIS Amsco® V-PRO™ 1 and V-PRO™ 1 Plus Low Temperature Sterilization Systems

NFPA 704 HAZARD RATING:

Product No. PB007, PB028

MSDS No. A124

HEALTH: 3
FIRE: 0
REACTIVITY: 1

Prepared by: M. Ebers **asksteris_msds@steris.com**
Date Created: May 16, 2006 **Date Revised: March 8, 2010**

STERIS Corporation, P. O. Box 147, St. Louis, MO 63166, US
Emergency Telephone No.1-314-535-1395 (STERIS); 1-800-424-9300 (CHEMTREC)
Telephone Number for Information: 1-800-548-4873 (Customer Service-Healthcare Products)

STERIS Limited, STERIS House, Jays Close, Viables, Basingstoke, Hampshire, RG22 4AX, UK
Emergency Phone No: +44 (0) 1895 622639 Product/Technical Information Phone No: +44 (0) 1256 840400

2. Hazards Identification: Causes burns. Harmful if swallowed. Corrosive to eyes, skin, nose, throat and lungs.

3. Composition/Information on Ingredients

Hazardous Component(s)	% By Wt.	CAS No.	EU No.	Symbol	R Phrases	Oral LD_{50}	Inhalation LC_{50}
Hydrogen peroxide	59	7722-84-1	231-765-0	O,C	8,20/22,34	>225 mg/kg (rat) 50% solution	>0.17 mg/l (rat) 50% solution
Other non-hazardous components	To 100	NA	NA	NA	NA	NA	NA

4. First Aid Measures: Eye Contact: Flush eyes immediately with water for at least 15 minutes. Get medical attention. **Skin Contact**: Flush skin immediately with water for at least 15 minutes, while removing contaminated clothing and shoes, and thoroughly wash with soap and water. Get medical attention. **Inhalation:** Remove patient to fresh air. If not breathing, give artificial respiration. Get medical attention. **Ingestion:** Do not induce vomiting. Get medical attention. Do not give anything by mouth to an unconscious person. If conscious, drink a large quantity of milk or water.

5. Fire-Fighting Measures:
Conditions of Flammability/Flash Point/Auto-Ignition Temperature: Non-combustible
Upper Flammable Limit: NA **Lower Flammable Limit:** NA
Special Hazards: 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 hydrogen 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.
Explodability Data: ND
Extinguishing Media: Water or water fog. Do **not** use carbon dioxide or dry chemical fire extinguishers.
Special Fire Fighting Procedures: Flood with water. Cool tanks or containers. 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.
Hazardous Combustion Products: Contamination may cause rapid decomposition, oxygen gas release and dangerous pressures

6. Accidental Release Measures: 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.

7. Handling and Storage: 7.1 Handling: Read and observe all labeled use instructions.
7.2 Storage: Store in a cool dry area in the upright position and away from combustibles. Never return unused peroxide to original container. Utensils used for handling peroxide should be made only of compatible materials such as glass, stainless steel, aluminum or plastic.

8. Exposure Control/Personal Protection : 8.1 Occupational Exposure Limits Hydrogen peroxide: ACGIH TLV and OSHA PEL = 1 ppm; UK HSE EH40 STEL = 2 ppm; IDLH = 75 ppm
8.2 Personal Protection: Respirator Protection: If concentrations of hydrogen peroxide are in excess of the exposure limits, respiratory protection is required. SCBA is recommended and is mandatory for concentrations greater than 50 ppm hydrogen peroxide. In certain circumstances when the concentration of hydrogen peroxide is 10 ppm or less, a half facepiece, organic vapor/acid gas cartridge respirator may be appropriate. Consult with your respirator manufacturer. In certain circumstances when the concentration of hydrogen peroxide is 50 ppm or less, a full facepiece organic vapor/acid gas cartridge respirator may be appropriate. Consult with your respirator manufacturer.
Eye and Face Protection: Chemical splash goggles. **Protective Gloves:** Rubber, neoprene or vinyl
Other Protective Clothing and Equipment: Polyester or acrylic full cover clothing and rubber boots are recommended.
Engineering Controls/Ventilation: General or Local exhaust sufficient to control any release in excess of the threshold limits.

9. Physical and Chemical Properties
Solubility in Water: Complete **Specific Gravity: Approximately** 1.1 – 1.24
Physical State/Appearance/Odor: Clear colorless liquid/odorless.
pH (as distributed): 0-3.5 **Freezing Point:** -62F (-52C) (for 50% peroxide)
Odor Threshold, Vapor Pressure, Vapor Density, Evaporation Rate, Boiling Point and Freezing Point: ND
Coefficient of Water/Oil Distribution: NA

10. Stability and Reactivity
Stability: Stable **Hazardous Polymerization:** Will not occur.
Incompatible Materials: Cyanides, hexavalent chromium compounds, nitric acid, potassium permanganate, oxidizers, reducers, combustible materials, flammable vapors, alkalies, copper, dirt, dust, iron, heavy metals and their salts and organic materials (especially vinyl monomers).
Conditions to Avoid/Conditions of Reactivity: Unstable with heat and contamination; liberation of oxygen gas may result in dangerous pressures.
Hazardous Decomposition or Byproducts: Contamination may cause rapid decomposition, oxygen gas release and dangerous pressures

11. Toxicological Information
11.1 Acute (Primary Routes of Exposure)
Eyes (Irritancy): Liquid is extremely irritating and corrosive. Causes burns; effects may be delayed. Permanent eye damage and blindness can result. Vapors and mists are extremely irritating.
Skin (Irritancy or Sensitization): Liquid causes skin irritation and may cause burns after prolonged exposure. Causes bleaching of skin and stinging sensation. Dermal LD50 (Rabbit) > 2000 mg/kg. Destruction after 24 hours exposure. Vapors and mists are extremely irritating.
Inhalation: Vapors cause severe irritation to the nose, throat and lungs. May result in coughing and shortness of breath. LC50 (Rat) (90% solution) > 2000 ppm.
Ingestion: Harmful if swallowed. Causes burns to the gastrointestinal tract. Oral LD50 (Male Rat) = 1193 mg/Kg.
11.2 Long Term Exposure: None known.
Carcinogenicity: IARC, NTP and OSHA do not list this product or its ingredients as carcinogens. ACGIH lists hydrogen peroxide as a 'Confirmed Animal Carcinogen with Unknown Relevance to Humans' A3.
Reproductive Toxicity/Teratogenicity/Mutagenicity/Toxicologically Synergistic Products: ND

12. Ecological Information:
Ecotoxicity/Persistence and degradability/Mobility:
Channel catfish 96-hour LC50 = 37.4 mg/L
Fathead minnow 96-hour LC50 = 16.4 mg/L
Daphnia magna 24-hour EC50 = 7.7 mg/L
Daphnia pulex 48-hour LC50 = 2.4 mg/L
Freshwater snail 96-hour LC50 = 17.7 mg/L
For more information refer to ECETOC "Joint Assessment of Commodity Chemicals No. 22, Hydrogen Peroxide." ISSN-0773-6339, January 1993
CHEMICAL FATE INFORMATION: 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 hrs. and in soils from minutes to hours depending upon microbiological activity and metal contaminants.

13. Disposal Considerations: Empty cartridges may be disposed in normal trash. Expired cartridges should be disposed of according to local policies for hazardous materials. For additional guidance, contact the State Water Board or the Regional Office of the EPA.

14. Transport Information
Ground: Hydrogen peroxide aqueous solution, 5.1, 8, PGII, UN2014
Road/Rail: ADR/RID Class: UN 2014, Hydrogen peroxide aqueous solution, 5.1, 8, PGII
Sea: IMDG Class: Hydrogen peroxide aqueous solution, 5.1, 8, PGII, UN2014
Air: ICAO/IATA Class: PB007: Product containers are vented; therefore, product cannot be shipped by air.

Air: ICAO/IATA Class: PB028: UN 2014, Hydrogen peroxide aqueous solution, 5.1, (8), PGII
This material is authorized to be shipped as an "Excepted Quantity" and is RESTRICTED to "CARGO AIRCRAFT" ONLY by US Competent Authority Approval CA 20008070005 Rev-2.

Air: 49 CFR – Class: PB028: UN 2014, Hydrogen peroxide aqueous solution, 5.1, (8), PGII
This material is authorized to be shipped under the Small Quantity Exception of 173.4 and is RESTRICTED to "CARGO AIRCRAFT" ONLY by US Competent Authority Approval CA 20008070005 Rev-2.

15. Regulatory Information
EU Regulations: This preparation is classified as dangerous as defined by the UK Chemicals (Hazard Information and Packaging for Supply) Regulations. These regulations implement a number of EC Directives including the Dangerous Substances Directive (67/548/EEC and amendments), the Dangerous Preparations Directive (1999/45/EEC and amendments) and the Safety Data Sheets Directive (91/155/EEC and amendment).
EEC Classification: OXIDISING / CORROSIVE **Hazard Symbol:** O / C
Risk Phrases: R8: Contact with combustible material may cause fire. R20/22: Harmful by inhalation and if swallowed. R34: Causes burns.
Safety Phrases: S17: Keep away combustible material. S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28: After contact with skin, wash immediately with plenty of water. S36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
CANADA: WHMIS: Product Identification No. 2014; Hazard Classification: Class C (Oxidizer), Class D, Div. 2, Subdiv. B (Toxic) Class E (Corrosive)
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulation.
Ingredient Disclosure List: Listed

NFPA 704 Hazard Rating: Health: 3, Flammability: 0, Reactivity: 1.

16. Other Information: 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.
NA - Not Applicable ND - No Data