MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**Hydrogen Peroxide Solution (500 mL Bottle)**
Issue date	**9/14/12**
Change Order #	1005190
CAS #	Mixture
Revision #	E
MSDS Number	09461-0-001
Manufacturer/Supplier	Advanced Sterilization Products 33 Technology Drive, Irvine CA 92618
Telephone number	1-800-755-5900
Emergency	24-Hour phone (Access code): 1-760-476-3962 (333623)

2. Hazards Identification

Physical state	Liquid.
Appearance	Colorless liquid.
Emergency overview	DANGER Harmful if inhaled or swallowed. Causes skin, eye and digestive tract burns. Strong oxidizer - contact with other material may cause fire.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Corrosive. Prolonged contact causes serious eye and tissue damage.
Skin	Corrosive. Prolonged contact causes serious tissue damage.
Inhalation	Harmful if inhaled. Vapors and mist will irritate throat and respiratory system and cause coughing.
Ingestion	Harmful if swallowed. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Target organs	Eyes. Skin. Gastro-intestinal tract Respiratory system.
Chronic effects	Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).
Signs and symptoms	Causes skin and eye burns. Symptoms include itching, burning, redness, and tearing of eyes. Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract.
Potential environmental effects	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Hydrogen peroxide	7722-84-1	>50

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately. Continue rinsing. Hold eyelids apart.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.
Inhalation	Move injured person into fresh air and keep person calm under observation. If breathing is difficult, give oxygen. If symptoms persist, get medical attention.

Ingestion

Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Only induce vomiting at the instruction of medical personnel. Do not give anything by mouth to an unconscious person. Get medical attention immediately.

Notes to physician

Treat symptomatically. Symptoms may be delayed.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties

The product is not flammable. May ignite combustibles (wood, paper, oil, clothing, etc.).

Extinguishing media

Suitable extinguishing media

The product itself does not burn. Increases fire risk. Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media

None known.

Protection of firefighters

Specific hazards arising from the chemical

During fire, gases hazardous to health may be formed.

Protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions

Cool containers with flooding quantities of water until well after fire is out. Use water spray to cool unopened containers. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal precautions

Local authorities should be advised if significant spillages cannot be contained. Stay upwind. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering. Keep out of low areas. Use Personal Protective Equipment recommended in Section 8 of the MSDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.

Methods for cleaning up

Clean up in accordance with all applicable regulations. Should not be released into the environment. IN CASE OF SPILL: Dilute with a large volume of water and hold in a pond or diked area until hydrogen peroxide decomposes. Clean contaminated surface thoroughly. After removal flush contaminated area thoroughly with water.

Never return spills to original containers for re-use. This material and its container must be disposed of as hazardous waste.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Use only with adequate ventilation. Keep away from combustible material. Avoid prolonged exposure. Wash thoroughly after handling. Handle and open container with care. Use Personal Protective Equipment recommended in section 8 of the MSDS.

Storage

Store in closed original container at temperatures at 15 - 30°C (59 - 86°F). Store in a well-ventilated place. Protect from sunlight. Keep away from heat, spark, open flames and other sources of ignition. Keep upright. Store away from incompatible materials. Keep this material away from food, drink and animal feed. Oxidizing material - Keep away from flammable and combustible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Hydrogen peroxide (7722-84-1)	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Hydrogen peroxide (7722-84-1)	PEL	1.4 mg/m3
		1 ppm

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Hydrogen peroxide (7722-84-1)	TWA	1.4 mg/m3
		1 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Hydrogen peroxide (7722-84-1)	TWA	1 ppm

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Hydrogen peroxide (7722-84-1)	TWA	1.4 mg/m3
		1 ppm

Canada. Quebec OELS. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Hydrogen peroxide (7722-84-1)	TWA	1.4 mg/m3
		1 ppm

Mexico. Occupational Exposure Limit Values

Components	Type	Value
Hydrogen peroxide (7722-84-1)	STEL	3 mg/m3
		2 ppm
	TWA	1.5 mg/m3
		1 ppm

Exposure guidelines Use personal protective equipment as required. Keep working clothes separately.

Engineering controls Provide adequate ventilation and minimize the risk of inhalation of vapors and mists.

Personal protective equipment

Eye / face protection Wear approved chemical safety goggles. Use face shield in case of splash risk. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin protection Wear protective gloves. Recommended gloves include rubber, neoprene, nitrile or viton. Wear suitable protective clothing.

Respiratory protection No protection is ordinarily required with adequate ventilation. Wear respiratory protection during operations where spraying or misting occurs.

General hygiene considerations Wash thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance Colorless liquid.

Color Colorless.

Odor Odorless.

Odor threshold Not available.

Physical state Liquid.

Form Liquid.

pH < 3

Melting point Not available.

Freezing point Not available.

Boiling point 244.4 °F (118 °C)

Flash point > 200.1 °F (> 93.4 °C)

Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	14.8 mmHg
Vapor density	Not available.
Specific gravity	1.24
Solubility (water)	Soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	1.207 cP

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	Excessive heat and contamination could cause product to become unstable and decompose.
Incompatible materials	Reducing agents. Wood, paper and other combustibles. Iron. Heavy metals. Copper and copper alloys. Caustics.
Hazardous decomposition products	Oxygen.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	**Test Results**
Hydrogen Peroxide Solution (500 mL Bottle) (Mixture)	Acute Dermal LD50 Rabbit: 6.5 g/kg 70 % hydrogen peroxide Acute Oral LD50 Rat: 376 mg/kg

Acute effects	Harmful if inhaled or swallowed.
Local effects	Causes skin, eye and digestive tract burns. Vapors and mist may irritate throat and respiratory system and cause coughing.
Sensitization	Not classified.
Chronic effects	Prolonged or repeated contact may dry skin and cause irritation.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

ACGIH Carcinogens

Hydrogen peroxide (CAS 7722-84-1)	A3 Confirmed animal carcinogen with unknown relevance to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Hydrogen peroxide (CAS 7722-84-1)	3 Not classifiable as to carcinogenicity to humans.

Mutagenicity	None known.
Reproductive effects	None known.
Symptoms and target organs	Causes skin and eye burns. Symptoms include itching, burning, redness, and tearing of eyes. Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract.

12. Ecological Information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	The product is biodegradable.
Bioaccumulation / Accumulation	Potential to bioaccumulate is low.

Partition coefficient (n-octanol/water)	Not available.
Mobility in environmental media	The product is miscible with water. May spread in water systems.

13. Disposal Considerations

Waste codes	Not regulated.
Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN2014
Proper shipping name	Hydrogen peroxide, aqueous solutions
Hazard class	5.1
Subsidiary hazard class	8
Packing group	II
Environmental hazards	
Marine pollutant	No
Labels required	5.1, 8
Additional information:	
Special provisions	12, A60, B53, B80, B81, B85, IB2, IP5, T7, TP2, TP6, TP24, TP37
Packaging exceptions	None
Packaging non bulk	202
Packaging bulk	243

IATA

Basic shipping requirements:

UN number	2014
Proper shipping name	Hydrogen peroxide, aqueous solution
Hazard class	5.1
Subsidiary hazard class	8
Environmental hazards	
Marine pollutant	No
Additional information:	
ERG code	5C

IMDG

Basic shipping requirements:

UN number	2014
Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard class	5.1
Subsidiary hazard class	8
Packing group	II
Environmental hazards	
Marine pollutant	No
EmS No.	F-H, S-Q

TDG

Basic shipping requirements:

Proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard class UN number	5.1
Packing group	UN2014
Marine pollutant	II
	No

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D)

Not regulated.

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

Hydrogen peroxide (CAS 7722-84-1) 1000 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

Hydrogen peroxide (CAS 7722-84-1) 1000 LBS

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CRF 355, Appendix A)

No

Section 311/312 (40 CFR 370)

No

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)

Not controlled

Canadian regulations

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

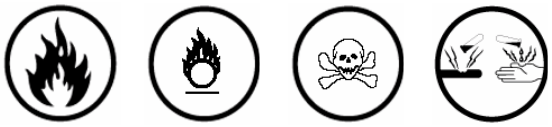
WHMIS status

Controlled

WHMIS classification

B3 - Flammable/Combustible
C - Oxidizing
D1B - Immediate/Serious-TOXIC
D2B - Other Toxic Effects-TOXIC
E - Corrosive

WHMIS labeling



Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - California Hazardous Substances (Director's): Listed substance

Hydrogen peroxide (CAS 7722-84-1)	Listed.

US - Massachusetts RTK - Substance: Listed substance

Hydrogen peroxide (CAS 7722-84-1)	Listed.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

Hydrogen peroxide (CAS 7722-84-1)	500 LBS

US - New Jersey RTK - Substances: Listed substance

Hydrogen peroxide (CAS 7722-84-1)	Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Hydrogen peroxide (CAS 7722-84-1)	Listed.

Mexico regulations

This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

HMIS® ratings

Health: 3*
Flammability: 0
Physical hazard: 1

NFPA ratings

Health: 3
Flammability: 0
Instability: 1
Special hazards: OX

Disclaimer

Additional information is given in the Material Safety Data Sheet. The information in the sheet was written based on the best knowledge and experience currently available.