




SAFETY DATA SHEET

1. Identification

Product identifier	STERRAD™ Cassettes
Other means of identification	
SDS number	11187-US
Synonyms	STERRAD™ 100S; STERRAD™ NX; STERRAD™ 100NX Product code(s): 10109, 10113, 10133, 10144
Recommended use	Hydrogen peroxide low temperature plasma sterilizer cassette
Recommended restrictions	For use only with ASP STERRAD Sterilizers.
Manufacturer/Importer/Supplier/Distributor information	
Company name	Advanced Sterilization Products, Inc.
Address	33 TECHNOLOGY DRIVE IRVINE, CA 92618
Country	US
Telephone number	1-888-783-7723
E-mail	ASP-SDS@asp.com
24 Hour Emergency Telephone	CHEMTREC US: 1-800-424-9300 CCN 795874 CHEMTREC International: +1 703-741-5970

2. Hazard(s) identification

Physical hazards	Oxidizing liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
OSHA defined hazards	Not classified.	
Label elements		

Signal word	Danger
Hazard statement	May intensify fire; oxidizer. Harmful if swallowed. Causes severe skin burns and eye damage. Harmful if inhaled. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep away from heat. Keep/Store away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe mist/vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	Wash contaminated clothing before reuse. In case of fire: Use appropriate media to extinguish. Rinse mouth. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.

Storage	Store locked up. Store in a well-ventilated place. Keep container tightly closed.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Hydrogen peroxide solution	7722-84-1	50 - 59.5

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a poison center or doctor/physician if you feel unwell.
Skin contact	If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Call a physician or poison control center immediately. Remove contact lenses, if present.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Causes digestive tract burns.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	Take off all contaminated clothing immediately. Contact with combustible material may cause fire. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Dry chemicals or foams. Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Greatly increases the burning rate of combustible materials. Containers can burst violently when heated, due to excess pressure build-up. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	May intensify fire; oxidizer. Contact with combustible material may cause fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep away from clothing and other combustible materials. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
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Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Ventilate the contaminated area. Wear appropriate protective equipment and clothing during clean-up. This product is miscible in water. Should not be released into the environment. Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage**Precautions for safe handling**

Keep away from heat. Take any precaution to avoid mixing with combustibles. Keep away from clothing and other combustible materials. Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection**Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

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

US. ACGIH Threshold Limit Values

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

US. NIOSH: Pocket Guide to Chemical Hazards

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

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield. Eye protection: to standard BS EN 166.

Skin protection**Hand protection**

Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Full contact: Glove material: Nitrile; Layer thickness: >0.55 mm; Breakthrough time: 120 min. Splash contact: Glove material: Nitrile; Layer thickness: >0.55 mm; Breakthrough time: 120 min. Suitable gloves can be recommended by the glove supplier.

Other

Wear appropriate chemical resistant clothing.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	1 - 3 (20 °C)
Melting point/freezing point	-61.6 °F (-52 °C)
Initial boiling point and boiling range	244.4 °F (118 °C)
Flash point	> 200.12 °F (> 93.4 °C)
Evaporation rate	~Water
Flammability (solid, gas)	May intensify fire; oxidizer.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not flammable.
Flammability limit - upper (%)	Not flammable.
Vapor pressure	16 mmHg
Vapor density	> 1 estimated
Solubility(ies)	
Solubility (water)	Soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not flammable.
Decomposition temperature	> 212 °F (> 100 °C) estimated
Viscosity	Not available.

Other information

Dynamic viscosity	1.25 mPa.s
Explosive properties	Not explosive.
Kinematic viscosity	0.87 m²/s estimated
Kinematic viscosity temperature	68 °F (20 °C)
Molecular formula	H2-O2
Molecular weight	34.01 g/mol
Oxidizing properties	May cause fire or explosion; strong oxidizer.

10. Stability and reactivity

Reactivity	Greatly increases the burning rate of combustible materials. Reacts violently with strong alkaline substances. This product may react with reducing agents.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat. Avoid temperatures exceeding the decomposition temperature. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Do not mix with other chemicals.
Incompatible materials	Strong acids. Strong bases. Heavy metals. Reducing agents. Combustible material. Contamination. Accelerators.

Hazardous decomposition products Oxygen.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Causes digestive tract burns.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful if swallowed.

Components	Species	Test Results
Hydrogen peroxide solution (CAS 7722-84-1)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
Inhalation		
LC50	Rat	> 170 mg/m ³ , 4 Hours
Oral		
LD50	Rat	> 500 mg/kg

Skin corrosion/irritation Causes severe skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

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

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

Further information No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity

Components	Species		Test Results
Hydrogen peroxide solution (CAS 7722-84-1)			
Aquatic			
Acute			
Algae	EC50	Chlorella vulgaris	2.5 mg/l, 72 hours
Crustacea	EC50	Daphnia pulex	2.4 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	16.4 mg/l, 96 hours
Persistence and degradability	The product is expected to be biodegradable.		
Bioaccumulative potential	The product is not expected to bioaccumulate.		
Partition coefficient n-octanol / water (log Kow)			
Hydrogen peroxide solution (CAS 7722-84-1)	-1.57		
Mobility in soil	The product is soluble in water. Expected to be mobile in soil.		
Other adverse effects	Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.		

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose in accordance with local regulations. Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT	
UN number	UN2014
UN proper shipping name	Hydrogen peroxide, aqueous solution
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Label(s)	5.1, 8
Packing group	II
Environmental hazards	
Marine pollutant	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. STERRAD™ Cassettes are allowed to be shipped by air in Excepted Quantities per UN2014 (40-60%) Special Provision A60.
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	
UN number	UN2014
UN proper shipping name	Hydrogen peroxide, aqueous solution
Transport hazard class(es)	
Class	5.1

Subsidiary risk 8
Packing group II
Environmental hazards No.
ERG Code 5C
Special precautions for user Read safety instructions, SDS and emergency procedures before handling. Hydrogen peroxide (aqueous solution) (concentration 40-60%) Air transport is permitted in an amount exempted by Special Regulation A75.

IMDG

UN number UN2014
UN proper shipping name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Transport hazard class(es)
Class 5.1
Subsidiary risk 8
Packing group II
Environmental hazards
Marine pollutant No.
EmS F-H, S-Q
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

General information This product meets the requirement for Dangerous Goods shipped in Excepted Quantities for all authorities.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Hydrogen peroxide (Conc.> 52%) (CAS 7722-84-1) 1000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA)

This substance is on the TSCA 8(b) inventory and is designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
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Hydrogen peroxide solution	7722-84-1	1000	1000		
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SARA 311/312 Hazardous chemical Yes

Classified hazard categories Oxidizer (liquid, solid, or gas)
 Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**Food and Drug Administration (FDA)** Total food additive
Direct food additive
GRAS food additive**US state regulations****US. Massachusetts RTK - Substance List**

Hydrogen peroxide solution (CAS 7722-84-1)

US. New Jersey Worker and Community Right-to-Know Act

Hydrogen peroxide solution (CAS 7722-84-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Hydrogen peroxide solution (CAS 7722-84-1)

US. Rhode Island RTK

Hydrogen peroxide solution (CAS 7722-84-1)

California Proposition 65California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	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)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision**Issue date** 24-May-2021**Revision date** -**Version #** 01**HMIS® ratings** Health: 3
Flammability: 0
Physical hazard: 2
Personal protection: B**List of abbreviations** IARC: International Agency for Research on Cancer.
LC50: Lethal Concentration 50%.
EC50: Effective Concentration, 50%.**References** ECHA registered substances database**Disclaimer** Advanced Sterilization Products, Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.