

How does SteriPEN™ disinfect water?

SteriPEN™ uses short wave germicidal UV light to disinfect water. This range of UV light disrupts the DNA within bacteria, viruses and protozoa, rendering them unable to reproduce and therefore, harmless. For more detailed information on how germicidal UV light destroys micro-organisms, visit our web site at www.steripen.com.

Testing

At Hydro-Photon, we believe that careful testing is an important part of successful and responsible product development and quality control. A wide range of testing has gone into the development and production of your SteriPEN™. To see SteriPEN's full microbiological test reports conducted at the University of Arizona, Tucson; University of Maine, Orono; Ryerson University, Toronto Ontario; A&L Laboratory, Auburn, ME; and Oregon Health Sciences University, Portland, visit the "Testing" section of our web site at: www.steripen.com/testing.html

Product Quality

At Hydro-Photon, product quality is our first priority. Every single SteriPEN™ is tested for correct function and ultraviolet light output. A Limited Lifetime Warranty for any manufacturing defect is included with every SteriPEN™.

Thank you for buying SteriPEN™, and congratulations on your purchase. Years of careful research, development and testing have gone into the creation of this unique product.

Directions for Use 40 C.F.R. §156.10(i)(2)

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. 40 C.F.R. §156.10(i)(2)(ii)

SteriPEN™ is not a sterilizer. SteriPEN™ exceeds U.S. EPA standards for a "microbiological water purifier," destroying over 99.9999% of bacteria, 99.99% of viruses, and 99.9% of protozoa when used as directed.

Operating the SteriPEN™

Quick Start Guide

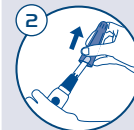
Use SteriPEN™ with clear water. Discolored or dirty water should be pre-filtered until clear prior to SteriPEN™ treatment.



SteriPEN™ treats two ranges of water volume:

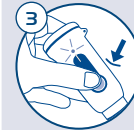
A—up to 0.5 L (16 fl. oz.)

B—between 0.5 – 1 L (16 – 32 fl. oz.)



1 Insert 4 AA batteries correctly.

2 Remove lamp cover. *Note: sensors must be dry.*



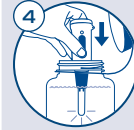
3A Push On/Off button **twice** for up to 0.5 L (16 fl. oz.) – green LED (Light Emitting Diode) will flash for up to 15 seconds indicating SteriPEN™ is ready to use.

Note: SteriPEN™ will not function unless this step is completed before immersing lamp in water.



3B Push On/Off button **once** for 0.5 – 1 L (16 – 32 fl. oz.) – green LED will flash for up to 15 seconds indicating SteriPEN™ is ready to use.

Note: SteriPEN™ will not function unless this step is completed before immersing lamp in water.



4 While green LED flashes the ready signal, dip the ultraviolet (UV) lamp into the water to be treated so that lamp and water sensors are completely immersed. When water is detected, lamp turns on automatically, emitting both UV and visible light.

Note: If visible light is not evident, SteriPEN's lamp is not on, and water should not be consumed.



5 Agitate the water by stirring with the SteriPEN™ until the lamp automatically turns off. Once lamp turns off, green indicator LED will turn on to show that the UV dose is complete. *Note: If red LED turns on after lamp shuts off, the dose was not complete.*



6 Remove SteriPEN™ from water. Dry off lamp and water sensors with clean cloth. Replace lamp cover.

Safety

SteriPEN™ may be used in glass, plastic, ceramic or metal containers. They all absorb and reflect UV light, thereby shielding the user from UV exposure. SteriPEN™ should not be used in quartz containers. The air/water interface at the top of any drinking container is highly reflective to UV and reflects UV back into the container.

Water Sense Circuitry

SteriPEN's water sense circuitry is intended to prevent the UV lamp from illuminating unless it is completely immersed in water. If SteriPEN™ is not immersed in water within 15 seconds of being activated, it will deactivate.

Agitation of Water

Agitation of the water by stirring with SteriPEN™ or rocking the container is essential for proper operation as this insures uniform exposure of all water to germicidal UV light.

Cold Weather Considerations

Bring SteriPEN™ up to a temperature above 32°F/0°C before using. Battery performance may be adversely affected by cold weather. NiMH rechargeable batteries are the best choice for economical use as well as for cold weather. Store your batteries in your pocket or warm place when in cold weather conditions.

SteriPEN™ LED (Light Emitting Diode) Signals

LED Color and Pattern Display

Operating Signals

Green, fast flashing (after button push)

Green, slow flashing: 1 second on, 1 second off (after dose completion)

Green, steady (after dose completion)

Green blinks for 15 seconds followed by a quick Red flash

Green flash followed by Red flash

Red, steady

Battery Warnings

Red, fast flashing

Green slow blinking with Red flashes

Green, steady with Red flashes

LED will not come on

Lamp Warnings

Red 2 flashes, Green 2 flashes (repeating)

Red 3 flashes, Green 1 flash (repeating)

UV lamp emits no visible blue light

Indication

Unit is armed and ready to treat water

1 liter (32 fl. oz.) dose completed

0.5 liters (16 fl. oz.) dose completed

Time expired, try again. The user has 15 seconds to put the SteriPEN™ in water after activation.

(1) Dry water sensing pins before use.
(2) Press On/Off Button for 1 second to activate for 32 oz. timer; again for 16 oz.
(3) Clean water sensing pins.

Dose incomplete. Repeat treatment.

Replace or recharge batteries

1 liter (32 fl. oz.) dose completed; low battery

0.5 liters (16 fl. oz.) dose completed; low battery

(1) Charge or replace batteries
(2) Clean battery contacts
(3) Return SteriPEN™ for repair

Over 7,900 treatments completed; lamp replacement needed in under 100 doses

Lamp failure; replace lamp

Lamp failure. Follow warranty procedure.

- To treat 0.5 liters of turbid water, use a single 1 liter dose. To accomplish this, push the operating button once and complete the treatment.

Turbidity is a measure of water clarity as effected by the presence of suspended solids. As turbidity increases, the suspended solids and murkiness of the water also increase. It is difficult to communicate a particular level of turbidity with just a written description. Accordingly, please take into account the following when considering the use of SteriPEN™ in water that is not clear: Laboratory testing has shown that SteriPEN™ is effective in water with a turbidity of not less than 30 ntu (Nephelometric Turbidity Units) as described in the US EPA Guide Standard and Protocol for Testing Microbiological Water Purifiers, section 3.3.4. SteriPEN™ has been successfully tested in water with a turbidity measurement of 33 ntu. If viewing 33ntu water in a clear 1 liter bottle, one might characterize the water as follows: *Much closer to clear than opaque, Obviously not clear, Obviously cloudy, Objects viewed through the water are visible but blurry, As cloudy as weak lemonade.*

Care and Cleaning

When not in use, SteriPEN™ should be kept in a clean, dry, non-abrasive area or container. SteriPEN™ should not be exposed to ambient temperatures above 140°F/60°C or below -4°F/-20°C. When storing SteriPEN™ for long periods, remove batteries.

To clean SteriPEN™, wash with a soft cloth and a mild soap solution. Rinse soap from device and dry with a clean, soft cloth. Note that while the battery compartment of SteriPEN™ is designed to be water resistant, it is not guaranteed to be impermeable and should therefore never be submerged.

Troubleshooting

If flashing green LED (Light Emitting Diode) shows that SteriPEN™ is armed, but the lamp does not light when immersed in water, check to be sure lamp is completely immersed and that water is contacting both sensors.

If immediately after completing a treatment another treatment is attempted, but fast flashing green LED will not activate, check to see that SteriPEN's water sensors are not immersed in water or wet. Remove SteriPEN™ from water or dry sensors off and press On/Off button again.

If fresh batteries have been installed, but SteriPEN™ will not complete a dose, low temperature may be the cause. NiMH rechargeable batteries are a better choice for cold weather applications.

Repair Information

Any repairs to your SteriPEN™ should be done by an authorized technician. Please contact your local distributor/importer for all repairs.

Product Registration & Warranty Information

Limited Lifetime Warranty for any manufacturing defect. For product registration and complete warranty information, please visit www.steripen.com/warranty or contact your local distributor/importer.

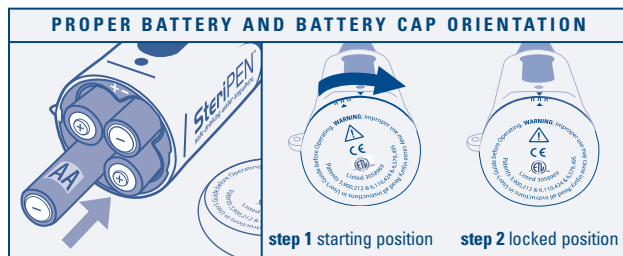
Warnings for Safe Use

- Improper operation of SteriPEN™ may cause injury. Read and understand all warnings prior to operating SteriPEN™.
- Do not allow water to enter SteriPEN™ through the battery compartment.
- Do not submerge the battery compartment end of the device.
- Do not operate SteriPEN™ in quartz containers such as quartz laboratory beakers.
- SteriPEN™ is not intended for use by children.
- SteriPEN™ is a high voltage device. Removal or tampering with the electronic circuit board or lamp assembly may cause injury, or damage SteriPEN™.
- Do not open, expose, modify or touch internal circuitry; this can lead to high voltage shock.
- Do not attempt to bypass water sensor; this is an important safety feature.
- As with any water treatment system, you should always have a backup method available.
- Like most fluorescent-type lamps, SteriPEN's lamp contains a small amount of mercury. Please return your SteriPEN™ at the end of its productive life to your distributor/importer to permit correct recycling or safe disposal.

Battery Selection & Installation

SteriPEN™ uses 4 AA cell batteries. While any AA cell batteries work, our tests show that Lithium batteries average 200 0.5 liter (16 fl. oz.) treatments, NiMH average 180-210 0.5 liter (16 fl. oz.) treatments, and Alkaline offer 20-40 0.5 liter (16 fl. oz.) treatments. Colder ambient temperatures may negatively affect the number of doses per battery charge. Hydro-Photon recommends Energizer Lithium e², Nuon Lithium or similar high quality Lithium disposable AA batteries. When using rechargeable batteries, use Nickel Metal Hydride (NiMH) with 2300 mAh capacity or greater for best results. For more battery information, visit www.steripen.com.

To replace batteries, remove the battery end cap. Install new batteries in the end cap with polarities as shown. Re-install end cap.



Treating Turbid, Murky or Cloudy Water

SteriPEN™ is intended for use, and is most effective, in clear water. However, SteriPEN™ has been shown to reduce microbial contamination in turbid water. If clear water is not available, first try to filter the water to clarify it. If it is necessary to treat turbid, murky or cloudy water in an emergency situation, use SteriPEN™ as follows:

- To treat 1 liter of turbid water, use two one-liter treatments. To accomplish this, push the operating button one time and complete the first treatment. Then push the button one time again and complete the second treatment.

- SteriPEN™ is not intended to disinfect surfaces of a drinking container, i.e. those that typically contact the mouth when drinking. Be certain that your drinking container has been properly cleaned/washed prior to using SteriPEN™.
- SteriPEN™ is not intended to disinfect water above the surface of the water in the container, i.e., droplets of water suspended on the side of the glass.
- SteriPEN™ is intended for use with clear water but in emergencies may be used in moderately turbid water. See "Treating Turbid, Murky or Cloudy Water" section above before deciding to use SteriPEN™ on turbid water.
- SteriPEN™ is designed to treat 0.5 or 1.0 liter (16 or 32 fl. oz.) of clear water. If in doubt about volume of water to be treated, confirm volume with a measuring device such as a measuring cup.
- Do not store SteriPEN™ for long periods with alkaline batteries installed.
- When operating properly, SteriPEN's lamp will emit visible light as well as UV. If lamp is not emitting visible light, it is not functioning properly, and should not be used until repaired.
- SteriPEN's lamp assembly must be clean prior to use.
- If SteriPEN™ is below 32°F/0°C it should be warmed above 32°F/0°C before operating.
- Do not allow impact to the lamp end. If lamp assembly (lamp or quartz sleeve) is cracked, chipped or damaged, do not operate. Return to your local distributor/importer for repair.
- Do not use as a light source.
- Do not use in liquids other than clear water.
- Do not use in water with ice.
- Do not use in water above 140°F/60°C.
- UV light can be harmful to eyes and skin. Never look at an unshielded UV lamp during operation. When used properly, according to instructions, the user is well shielded from SteriPEN's UV light.
- Do not operate near skin.
- Do not operate near eyes.
- Do not insert into bodily orifices.
- While carefully controlled microbiological testing of SteriPEN™ has been conducted, use of SteriPEN™ in the field may produce results that vary from our laboratory test data.
- Do not use in any manner other than instructed in this User's Guide.

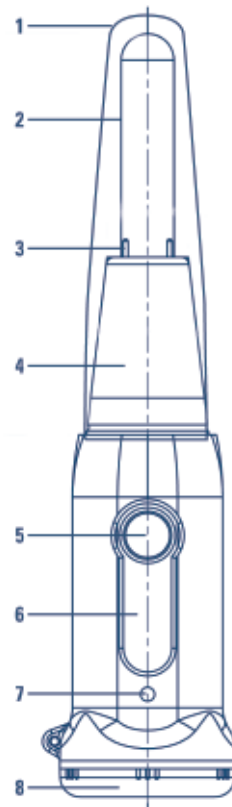
Certifications & Patents

Compliance testing of SteriPEN™ for the cETLus and CE marks was successfully completed at Intertek Testing Services (ITS), Boxborough, MA, USA. This testing is described in ITS test report number: J20027896.01, October 18, 2000.

Conforms to EN61010-1:1993 + A1 + A2 and EN 61326
Listed 3058969. Conforms to Standard UL 61010A-1
Certified to CAN/CSA Standard C22.2, No. 1010.1-92
U.S.E.P.A. Company #73679, U.S. EPA Establishment #07369-ME-001



SteriPEN™ technology is patented in the USA with further U.S. patents pending and patents pending worldwide. SteriPEN™ is a trademark of Hydro-Photon, Inc.



Guide to SteriPEN™ Parts

- 1) UV Lamp Cover
- 2) UV Lamp Assembly
- 3) Water Sensors (2)
- 4) Rubberized neck
- 5) On/Off Button
- 6) Thumb Grip (finger grips on opposite side of device)
- 7) Indicator LED (Light Emitting Diode): shows activation status
- 8) Battery Compartment End Cap
- 9) Warning label

Distributors/Importers

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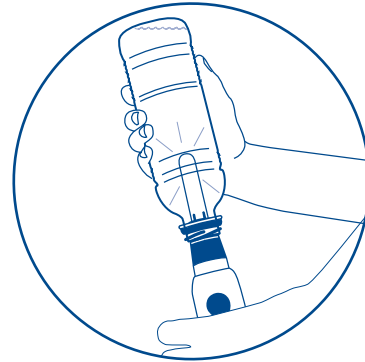
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Did you know?



You can use your SteriPEN™ with pre-filled water bottles up to 1 liter in size.

Using SteriPEN™ instead of buying bottled water keeps plastic bottles out of landfills.

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