



Innovations in Water Technology

ENGLISH - Capacity: 1-20 L with a 2.5 mg/L dose

Instruction Manual



OPERATING INSTRUCTIONS

STEP 1. MAKE SALT WATER

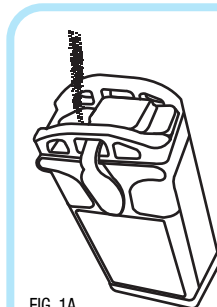


FIG. 1A

- A.** Remove one salt plug from the top of the H2g0® Purifier and fill the chamber with salt for a reserve supply. (FIG. 1A) Replace the salt plug.
- B.** Fill the second salt chamber with salt and replace the salt plug.
- C.** Remove the cap from the salt water bottle and fill the salt water bottle to the salt fill line with salt. (FIG. 1B)
- D.** Add water to the salt water bottle until full. This water can be the same as the water you will be treating.
- E.** Put the cap back on the salt water bottle and shake the salt water bottle until all of the salt is dissolved.



FIG. 1B

NOTE: Each of the salt chambers in the H2g0® Purifier holds the correct amount of salt to fill the salt water bottle to the salt fill line. The salt in these chambers can be used to make the salt water in the bottle while in the field. The salt water bottle holds enough salt water for about 10 applications. If the salt water bottle is lost, you may mix salt water solution directly in the device reaction chamber (see Step 2).

OPERATING INSTRUCTIONS

STEP 2. ADD SALT WATER TO DEVICE

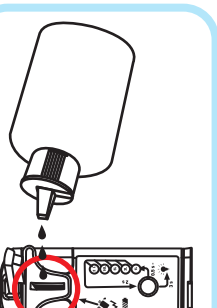


FIG. 2A

- A.** Remove the rubber plug from the reaction chamber of the device. Note that the rubber plug can be bent over the top of the purifier and the tip of the plug inserted under the little rib in the lanyard opening so that the plug stays out of the way during operation.
- B.** Lay the purifier on a flat surface with the controls facing up.
- C.** Pour salt water from the salt water bottle into the reaction chamber until the chamber is nearly full of salt water. (FIG. 2A)

NOTE: If the salt water bottle is not available, a pinch of salt (roughly 1/2 gram or 1/16 tsp) can be added directly into the reaction chamber, followed by enough water to fill the chamber. Allow the salt to dissolve before operating the device.

OPERATING INSTRUCTIONS

STEP 3. SELECT AMOUNT OF WATER TO BE TREATED

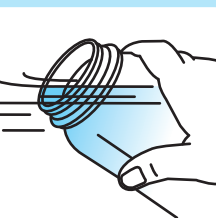


FIG. 3A

- A.** Fill container with water to be treated. (FIG.3A)
- B.** Note volume of water container in liters:
 - 1 LITER = 1 QUART = 32 OZ
 - 2 LITER = 2 QUARTS = 64 OZ
 - 5 LITER = 1.3 GALLON = 169 OZ
 - 10 LITER = 2.6 GALLONS = 338 OZ
 - 20 LITER = 5.3 GALLONS = 676 OZ
- C.** Press the activation button to select the volume of water you want to treat from 1-20 liters. Continue pushing the button multiple times in succession until your desired volume is illuminated by a green light.

WARNING! Do not use seawater. The H2g0® Purifier does not make drinkable water out of salty or brackish water. Choose the cleanest water available. Avoid water sources with high levels of chemical contamination, such as mine tailing ponds, and sources near large agricultural operations. The H2g0® Purifier does not effectively reduce heavy metals or high levels of chemical contamination. Know how to effectively use this product.



OPERATING INSTRUCTIONS

STEP 4. MAKE DISINFECTANT

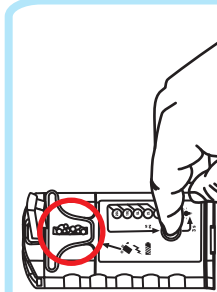


FIG. 4A

- A.** Once the desired volume light is lit, press and hold the activation button for 2 seconds or until the salt water in the cell chamber begins to bubble. As the process begins, the green light will blink quickly 3 times and then turn solid.
- B.** When the bubbles stop, the reaction is complete, and the green light will turn off.

NOTE: When treating larger volumes of water, the disinfectant will be more concentrated and will take longer to generate in the device. The reaction time to generate disinfectant can vary anywhere from about 15 seconds (1 liter) to about 5 minutes (20 liters), depending on the volume of water you are treating, the temperature and concentration of the salt water, and other factors.

WARNING! Do not touch your eyes while using the purifier. The H2g0® Purifier creates a chemical oxidant like chlorine bleach that can damage your eyes. The same oxidant can also irritate skin and permanently stain clothing. Keep at least 12 inches (30 cm) away from your face and clothing during this step and while pouring oxidant into the water container. Rinse purifier and hands after use. Also, see **First Aid**.

OPERATING INSTRUCTIONS

STEP 5. ADD DISINFECTANT TO WATER



FIG. 4A

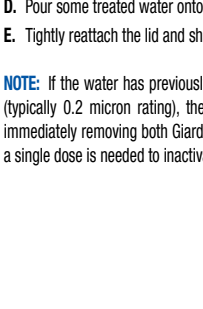


FIG. 4B

- A.** Pour the oxidant from the cell chamber into the container of water. The pour spouts leading from the cell chamber allow the oxidant to be poured out either from the left or right. (FIG. 4A) A single dose will inactivate bacteria and viruses.
- B.** If treating for Giardia or Cryptosporidium in clean-looking water, add a second dose to the water. (Repeat Steps 3 and 4 to generate a second batch of oxidant and then add it to the water container, or begin by selecting a volume on the purifier display that is twice the volume of the water you wish to treat.)
- C.** If the water is cloudy or colored, then Cryptosporidium requires a total of 4 doses. (i.e. Giardia requires 2 doses, regardless of water quality, while Cryptosporidium requires 2 doses in clear waters and 4 doses in dirty waters.)
- D.** Pour some treated water onto cap threads. (FIG 4B)
- E.** Tightly reattach the lid and shake thoroughly.

NOTE: If the water has previously been filtered with a microfilter (typically 0.2 micron rating), then this filter will be effective at immediately removing both Giardia and Cryptosporidium and only a single dose is needed to inactivate bacteria and viruses.

OPERATING INSTRUCTIONS

STEP 6. WAIT

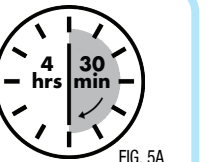


FIG. 5A

WARNING! Wait the full appropriate treatment time. Do not add more water to the container after the treatment process. Adding water after this step will dilute the strength of the treatment solution and increase the risk of contamination. Do not add drink mixes to the water before treatment time is complete or the treatment process may stop. To prevent drinking any contaminated water, the threads on the container and the cap must be rinsed with treated water.

- A.** Wait 30 minutes after appropriate dosing (see Step 5) to inactivate bacteria, viruses, and Giardia.*
- B.** Wait 4 hours after appropriate dosing (see Step 5) to inactivate Cryptosporidium.*
- C.** If desired, safety indicator strips may be used to verify that there is a free chlorine residual at the end of the wait period to ensure that the water is safe to drink. (See "Optional Test Strips" on next page.)

NOTE: If a microfilter (typically 0.2 micron rating) has first been used to treat the water, then the maximum wait time is only 15 minutes.

*Dosing requirements and wait times are based on World Health Organization (WHO) Household Water Treatment & Safe Storage Guidelines. The required inactivation levels for specific bacteria, viruses, and protozoan cysts are described in WHO's *Evaluating Water Treatment Options: Health-based targets and microbiological performance specifications*.

OPERATING INSTRUCTIONS

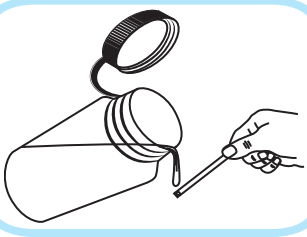
FLASHLIGHT OPERATION

- A.** Press and hold the activation button for 3 seconds to turn the flashlight on.
- B.** To turn the light off, press the activation button again.



NOTE: All other lights on the H2g0® Purifier must be off before the flashlight can be turned on. The flashlight will automatically turn off in about 15 minutes.

USE OF OPTIONAL TEST STRIPS



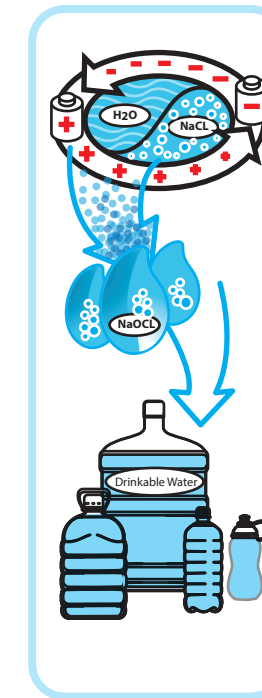
- A.** After the required wait time described in Step 6, pour the treated water over the test strip pad. (Do not insert the test strip into the treated water.) Hold the test strip level for 15 seconds. (Do not shake excess water from the strip.)
- B.** Compare the free chlorine pad on the end of the strip to the color chart on the test strip bottle.
- C.** An "OK" or "OK+" indication means the water is safe to drink.
- D.** If the test strip indicates "Too Low", add another dose of disinfectant and wait the time specified in Step 5.
- E.** Repeat until a residual is present at the end of the wait time.

WARNING! Do not wait more than 15 seconds to read the strip or the color may fade. Do not reuse the test strips if they have already colorized.

NOTE: The oxidant produced by the H2g0® Purifier provides a chlorine residual that keeps stored water safe to drink. The H2g0® Purifier is designed to treat the vast majority of waters (including cloudy or colored waters) to World Health Organization standards with the dosing protocol and wait times described in Steps 4 and 5. However, excessively challenging waters may contain substances that can consume the disinfectant before it has time to inactivate microorganisms in the water. While use of safety indicator strips is not required, they can provide a measure of certainty that the device is being used correctly and that the water is safe to drink, a benefit not offered by any other treatment technology, including filtration or ultraviolet (UV) light.

ABOUT THE H2gO® WATER PURIFIER

HOW THE H2gO® PURIFIER WORKS



The H2gO® Purifier GLOBAL is a miniature electrolytic oxidant generator. This device uses common salt, a few drops of water, and power from a rechargeable cell phone type lithium ion polymer battery to create a disinfectant solution that is added to the water. The device is able to treat anywhere from 1 liter (1 quart) up to 20 liters (5 gallons) at a time. The concentration of the solution increases for larger volumes of water, so the amount of disinfectant added to the water does not change, regardless of the volume of water to be treated. Selecting larger volumes for treatment will take more time to generate the disinfectant.

Each charge of the battery will treat about 300 liters* (80 gallons*) of water and the battery can be recharged more than 500 times with the on-board micro USB port. The device also incorporates a small on-board solar panel that can provide enough electricity in one hour of sunlight to treat 5 liters* (>1 gallon*) of water. With the solar panel, all you need to make your water safe to drink is common salt. For convenience, the device also incorporates an LED flashlight. The mixed oxidant disinfectant solution produced by the device transforms questionable water into drinkable water. Required treatment with no pre-filtration varies for different microorganisms:

- Viruses, bacteria, and Giardia – 30 minutes
- Cryptosporidium – 4 hours

These times are based on specific dosing instructions for performance against so-called "challenge water" – high organic load, high turbidity (cloudiness), low temperature, and high pH – presenting the worst case conditions for disinfectants.

*Volumes are based on a standard single dose in alignment with WHO Household Water Treatment & Safe Storage Guidelines for destroying bacteria and viruses. Protozoan cysts require dosing in excess of the standard.

ABOUT THE H2gO® WATER PURIFIER

TIPS

Purifier

A white salt crust around the cell chamber or cell chamber plug may form. This is harmless and can be easily rinsed or wiped off.

Batteries

In extremely low temperatures, the batteries will provide less power. If the device is cold and the BATTERY indicator light is lit, heat the device using body heat and try again.

Salt

Food grade salt is recommended since it is readily available and dissolves quickly in the salt water bottle. However, just about any type of sodium chloride salt is acceptable, including crystal salt or salt tablets that have been crushed. Be sure the salt is fully dissolved in the salt water bottle before proceeding, or the salt water concentration may not be sufficient for operation.

Brine Makeup Water

While clean water is recommended, water that is used to make the salt water can be just about any type of water including the raw water that you want to treat.

Salt Water Concentration

The salt water concentration in the salt water bottle is designed to produce sufficient conduction in the electrolytic cell to cause electrolysis to occur at an optimal level without taking too much time. However, the electrical circuit is tolerant of some variation in salt water concentration, so you do not have to worry about mixing a perfectly exact concentration. In some cases, you may not have sufficient salt to make the appropriate amount of salt water in the bottle, which provides enough salt water for at least 10 treatments. In that case, you can add a small amount of salt directly to the cell chamber, and then add water to the cell chamber. Cover the cell chamber with your thumb or finger and shake to dissolve the salt in the cell chamber, then try operating the system. If the low salt water indicator light is lit, add more salt, shake again, and try the operation again.

ABOUT THE H2gO® WATER PURIFIER

TIPS

Battery Charge

Batteries can discharge over time if not used. The device includes a low battery charge cutoff circuit to help prevent discharging the battery completely. If stored in the dark, or where the solar panel cannot get sunlight, we recommend partially recharging the device every six months. For long term storage, it is actually better if the battery is half charged rather than fully charged. The battery has a usable life of up to 10 years, after which the device needs to be replaced. End of life is indicated by the continued inability of the battery to hold a charge for any length of time.

Water To Be Treated

Use the cleanest water available. If dirty looking water is unavoidable, try using clothing, a facial tissue, a coffee filter, or other similar device to filter the water. A microfilter or ultrafilter is even more preferable for filtering the water, reducing some of the oxidant demand of the water and offering the added advantage of some microorganism removal, serving as another barrier to ensure the water is safe to drink.

Replaceable Components

There are no user replaceable components. The device is ultrasonically welded at the factory to ensure a water tight seal. The battery can be charged more than 500 times, offering up to 300 liters* (80 gallons*) of water per charge, so the device can treat more water than most casual users can consume in its lifetime. Those who use the H2gO® Purifier as their primary water treatment on a daily basis, or who use it to provide water to a community, will need to replace the device after 10 years due to battery shelf-life or sooner if the battery is recharged to its limit. This device was designed to be sustainable, with no ongoing consumables other than common salt, which is universally available.

Operation

Cold water may affect treatment times. Properly mixed brine in the brine bottle has a freezing temperature of about 15F (-9C). Water containing ice may not be effectively treated with oxidant as ice can protect microorganisms.

*Volumes are based on a standard single dose in alignment with WHO Household Water Treatment & Safe Storage Guidelines for destroying bacteria and viruses. Protozoan cysts require dosing in excess of the standard.

ABOUT THE H2gO® WATER PURIFIER

TROUBLESHOOTING

LED ACTIVITY	PROBLEM	MEANING	CAUSE	SOLUTION
ADD SALT WATER light solid red	There is not enough salt water to activate the H2gO® Purifier	Salt water concentration too low	Solution too low in cell chamber	Remake salt water solution to proper concentration Fill cell chamber to just below brim with salt water
ADD SALT WATER light blinking red	There is an electrical short	Foreign object in cell chamber		Check the cell chamber for foreign matter and remove
CHARGE light red	Battery is being charged	Power is flowing to battery		Light will turn off when battery is charged, even if plugged in. (A dim red light means that the solar panel is charging the battery and does not need to be fixed.)

BATTERY light red

Battery power is too low

Battery has been discharged too low to operate

Recharge the battery using the USB cable or solar panel

SAFETY INDICATOR STRIPS

PROBLEM – Strips unavailable, expired, or not colorizing

SOLUTION – Double dose the water and wait the appropriate time to treat the vast majority of waters found in the wild. If Cryptosporidium is a concern and the water is cloudy, colored, or cold, then quadruple dose the water and wait 4 hours.

Safety indicator strips are not necessary for the H2gO® Purifier to function properly but rather allow you to ascertain that all microorganisms have indeed been destroyed. Waters with very high levels of organics (tannins or humic acid) or ammonia or chloramines may create significant oxidant demand. Adding a significant amount of oxidant to this water will eventually oxidize these materials.

Test strips added directly to the oxidant solution may not colorize. Very high oxidant strength will bleach out the test strip color.

ABOUT THE H2gO® WATER PURIFIER

STORAGE

Purifier

- Storage Temperature Range: -4 to 140F / -20 to 60C
- Rinse and dry inside of purifier cell chamber before long-term storage
- Store in cool, dry place

Battery

- Battery is non removable and sealed in the case
- Storage life is 10 years
- Functionality can be optimized by charging at least once per year

Salt

Store salt in the two storage compartments in the top of the purifier and ensure the covers are securely in place. Store any additional salt in a sealed container to protect from moisture.

Safety Indicator Strips

- Storage life is 1.5 years
- Store sealed in container to protect from moisture
- Store at room temperature

ABOUT THE H2gO® WATER PURIFIER

SPECIFICATIONS

Kit Contents	H2gO® Purifier 1 oz (30 mL) salt water bottle with cap Micro USB adapter charger	Safety indicator strips – 50 Instruction manual Storage sack with quick start guide
Weight	H2gO® Purifier - 3.8 oz / 108 g, Kit - 7.3 oz / 207 g	
Dimensions	H2gO® Purifier - 1.7" W x 3.625" H x 1.1" D (4.3 cm W x 9.2 cm H x 2.8 cm D)	
Operating Temperature	20 to 130F / -6 to 54C	
Waterproof	Up to 60 feet / 18m	
Maximum Altitude	60,000 feet / 18 km	
Battery Life	Over 500 charges with 10-year shelf life, battery function can be optimized by charging at least once per year	
Salt	Sodium chloride salt granule, rock, or crystal form (food grade preferred)	
Reaction Chamber Volume	0.085 oz / 2.5 mL	
Salt Water Bottle Volume	1.125 oz / 33 mL – over 10 reaction chamber volumes	
Safety Indicator Strips	50 specifically formulated for measuring free chlorine, with 1.5-year shelf life	
Treatment Capacity	Lifetime – 124,000+ liters* Fully Charged with New Battery – 300 liters* 1 Hour USB Charge – 75 liters* 1 Hour Solar Charge – 5 liters*	

Microbiological Performance – based on WHO Household Water Treatment & Safe Storage Guidelines**	Bacteria – 99.99% kill / 4 log reduction / 15 minutes ("highly protective") Viruses – 99.999% kill / 5 log reduction / 15 minutes ("highly protective") Giardia – 99.9% kill / 3 log reduction / 30 minutes ("protective") Cryptosporidium -- 99.7% kill / 2.5 log reduction / 4 hours ("protective")
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*Volumes are based on a standard single dose in alignment with WHO Household Water Treatment & Safe Storage Guidelines for destroying bacteria and viruses. Protozoan cysts require dosing in excess of the standard.

**The World Health Organization's (WHO) Household Water Treatment & Safe Storage Guidelines are described in *Evaluating Water Treatment Options: Health-based targets and microbiological performance specifications*.

EPA establishment number 090386-CHN-001

USA and CANADA

LIMITED WARRANTY/LIMITATIONS OF REMEDIES AND LIABILITY

Limited Warranty, Aqua Research LLC ("AR") to the original owner ("Owner") under intended use and maintenance, warrants the enclosed product ("Product") to be free from defects in materials and workmanship for two years. No warranty against defects in materials and workmanship will apply if Product is (i) altered in any way, (ii) used for purposes inconsistent with Product's intended purpose or design, or (iii) improperly maintained. Warranty will furthermore be voided where user (i) failed to follow Product instructions or warnings, or (ii) subjected Product to misuse abuse or neglect. During the warranty period, original Product parts determined by AR to be defective in materials or workmanship will be repaired or replaced as Owner's sole remedy. AR reserves the right to replace any discontinued Product with a new Product of comparable value and function.

EXCLUDING THE LIMITED WARRANTY PROVIDED ABOVE, AR, ITS AFFILIATES AND THEIR SUPPLIERS, TO THE MAXIMUM EXTENT PERMITTED BY LAW, MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, AND DISCLAIM ALL WARRANTIES, DUTIES AND CONDITIONS, WHETHER EXPRESSED, IMPLIED, OR STATUTORY, WITH RESPECT TO THE PRODUCT, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, AGAINST LATENT DEFECTS, FITNESS FOR A PARTICULAR PURPOSE, OR CORRESPONDENCE TO DESCRIPTION.

Warranty Service. To obtain service under this warranty, the warranty-eligible Product must be presented to an AR authorized dealer. In the United States and Canada, warranty service may also be obtained by email request to service@h2gopurifier.com. Owner is responsible for all costs associated with returning Product to AR for service. Where at its sole discretion, AR deems product eligible for warranty repair or replacement, AR will pay the shipping and handling associated with returning repaired or replaced Product to Owner. In instances where AR deems a returned Product eligible for warranty service, AR will, if possible, repair Product for a reasonable charge that includes return shipping and handling. For warranty return service details, please go to www.h2gopurifier.com.

Limitation of Remedies. Should a court of competent jurisdiction find the limited warranty set forth above breached, AR's only obligation will be to, at its option, either repair or replace Product. Should the aforementioned remedy fail of its essential purpose, AR will, in exchange for return of Product, refund to Owner Product's original purchase price. THE FOREGOING REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE PURCHASER AGAINST AR, ITS AFFILIATES AND THEIR SUPPLIERS, REGARDLESS OF LEGAL THEORY.

For Product Service and Information Contact:

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ABOUT THE H2gO® WATER PURIFIER

FIRST AID INFORMATION

KEEP OUT OF REACH OF CHILDREN DANGER

This product makes chlor-oxygen chemical compounds generated electrochemically from a sodium chloride (salt) solution.

FIRST AID Have this product label with you when calling a Poison Control Center or doctor, or going for treatment.

If in eyes: Hold eye open and rinse with water for 15-20 minutes.

If swallowed: Call a Poison Control Center immediately for treatment advice. Have person sip a glass of water. Do not induce vomiting unless told to do so by a Poison Control Center or doctor. Do not give anything by mouth to an unconscious person.

If on skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice.

PRECAUTIONARY STATEMENTS Hazardous to Humans and Domestic Animals.

DANGER Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if swallowed. May irritate skin.

ENVIRONMENTAL HAZARDS This product is toxic to fish and other aquatic organisms.

PHYSICAL/CHEMICAL HAZARDS Keep away from combustible, organic, or other readily oxidizable materials. This product contains batteries. Batteries may explode or leak if disassembled, short-circuited, overcharged, discharged too low, or disposed of in a fire.

READ, UNDERSTAND, AND FOLLOW all instructions and warnings in this manual before using this purifier. Failure to follow all warnings and instructions may result in property damage, serious injury or illness.