

PortaWell Newsletter

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Tips and Tricks for Emergency Water Filtration

PortaWell Customers have asked a number of questions regarding the application and use of Portawell.

In this issue:

Answers to common customer questions about Portawell

Q—Can I filter my pool water with Portawell to make it safe for drinking?

A-- Pool water is a great water source if you know what chemicals have been used for its maintenance. Most pool chemistry is adequately controlled using chlorine tablets or using auto controllers that maintain the pool chemistry by injecting hydrochloric acid for PH control and sodium hypochlorite (bleach) for free chlorine levels. Chlorine tablets typically have Trichloro-S-Triazinetrione as its main ingredient. This provides free chlorine for control of biologics (bacteria and virus) and cyanuric acid which is acts as a stabilizer for the chlorine against sunlight. (Free Chlorine quickly breaks down in the presence of sunlight without a stabilizer present). EPA chlorine limits for drinking water is <4ppm and <20 ppm for cyanuric acid. A properly maintained swimming pool is < 4 ppm chlorine but the cyanuric acid concentration can be up to 70 to 90 ppm.

A charcoal filter is effective for reducing both chlorine and cyanuric acid. My swimming pool has a cyanuric acid of 70ppm and after filtering through the

charcoal filter it is reduced to < 15 ppm; a good filter combination for filtering my pool water is the ceramic filter in the first stage and a Carbon Bloc filter in the 2nd stage. A chlorine kit and cyanuric test strips can be purchased from pool supply websites to verify the filtered water meets EPA limits for those two chemicals.

If the pool has been regularly treated with some proprietary algicide or if there is significant algae in the water because the circulation pumps have been off for a long period, then the treatment strategy becomes a little more complicated. You may need to pretreat the water to remove the algae so it doesn't prematurely plug the filters and you may need to select a different filter to remove the more exotic chemicals in the algicide. Commercial filters that are available that fit PortaWell which contain media especially suited for reduction of heavy metals and a broader spectrum of organic chemicals. We offer the AquaCera CERAMETIX filter that reduces >92% of heavy metals and reduces (>90%) a wide range of other organic chemicals.

become an issue with water. Is this system able to filtrate those types of instances (I realize it may be tough to state definitively due to the many variables in the scenario).

Q—I have a saltwater pool. Can PortaWell filter this water to make it drinkable?

A—PortaWell filters do not remove salt (sodium chloride) from water or other hard water minerals such as calcium and magnesium. Because salt is a dissolved solid, the most common method to remove salt from water is through reverse osmosis filtration.

Q--Does your filter remove trace uranium?

A-- The filters supplied with PortaWell do not remove heavy metals like uranium; however, because PortaWell is designed to accept standard 2 inch x 10 inch filters, you are able to purchase a filter from other suppliers that will reduce heavy metals.

AquaCera supplies one called CERAMETIX that removes >92% Heavy Metals and >94% Radionuclides.

Q—Does PortaWell remove fluoride from water?

A-- The filters supplied with PortaWell do not remove fluoride; however, because PortaWell is designed to accept standard sized filters, you are able to purchase specialty filters from other suppliers that do reduce fluoride.

AquaCera supplies one called CERAMETIX that removes > 92 % Fluoride plus other heavy metals and organic contaminants.

Q--I am very interested in purchasing a Portawell. But I do have some questions regarding the ability to filtrate chemicals. I noticed on the website it is able to filtrate VOCs. My concern is with urban areas where VOCs, raw sewage and other pollutants

A--As you stated there are many different scenarios, but it is always best to start with the best water source possible. I would always avoid water sources with raw sewage or industrial pollutants.

PortaWell filters (actually all filters) work by physically trapping the targeted contaminant. The higher the concentration of contaminant (i.e., silt, algae, biologics, chemicals) the more quickly a filter media will load up and foul. While the ceramic filter (used for removal of bacteria and cysts) is cleanable, the sediment prefilter and carbon block filters are not.

PortaWell offers the flexibility of choosing different combinations of filters for different situations; however, it is up to the user to become knowledgeable about its use.

Q--So where are you supposed to put the sediment filter? There are only two housings. Is the sediment filter supposed to go on the end of the clear tube? Are you supposed to drop the big filter into the river?

A--The PortaWell is shipped with three filters. It is up to the user to determine which two filters to use based on the source water conditions. The table in the User Guide gives some guidance for filter selection and sequence. If the water source requires all three filters (it is cloudy and has possible chemical contaminants) you will need to filter the water twice. Once with the sediment filter in the first stage and the ceramic filter in the second stage, followed by a second filtration with the ceramic filter in the first stage and the carbon filter in the second stage.

*It is best to avoid a water source that is clouded with particulate or algae as it will quickly plug **any** filtration system designed to purify water. If that is the only water*

source you have access to, there are additional steps you will need to take to improve the water quality before filtering.

As to where to place the suction hose, the tubing with the small screen filter is placed in the source water. I have found it best practice to bucket the water from the source and then draw from the bucket, through the PortaWell and into a clean container.

Q—I just received my PortaWell and tried it. I would like to buy some longer input and output hoses. What is the description of the hoses (diameter, wall thickness, etc.) that would fit the PortaWell? I only received two hose clamps. Do I need more?

A--You can buy additional tubing from Home Depot or Lowes—it is ½ inch OD x 3/8-inch ID food grade vinyl tubing. I would limit the inlet and outlet length to less than 6 ft otherwise it will adversely affect the flow. The reason you only need two clamps is the inlet to the pump and the outlet from the PortaWell are barbed fittings with no pressure, unless you are pumping into a pressurized system (not usually the case). In that situation you may need to put a clamp on the outlet hose also.

Q--I'm located in Perth Western Australia. Do you ship the PortaWell international? Also do the units travel well. I'm worried about the housing being damaged in transit. Your response would be welcomed as my brother and I would both like to purchase.

A--We have just started shipping to Australia, New Zealand and Europe—give me your address and will calculate shipping for you. We have sent units to UK, and they arrived in good shape. The PortaWell is shipped in a 5-gallon bucket packaged inside a corrugated box and holds up very well.

Q--I am looking to purchase some replacement carbon filters. The one shipped with my unit is a 5-micron filter. Can I use a 1-micron filter without damaging it? I'm guessing the flow rate will decrease but it would provide better filtration. Would that be better?

A--Yes, the 1-micron carbon filter should work fine and may reduce your flow. If you are using it behind the .5-micron ceramic filter, there is not much advantage because the ceramic filter is doing the "heavy lifting" by removing any cysts or bacteria.

Q--I received the PortaWell in the mail today and it seems well built and in great condition however the included ACB filter's top is not level and I'm concerned it may not seal properly.

A--The Sealing of the filter to the filter housing depends on V shaped protrusions on the top filter housing lid and the bottom canister. From the testing I have done, when the filter housing is tightened with the filter installed, the tolerances allow a certain amount of misalignment and still make a tight seal. In fact, because the filter seals on both the top and bottom surfaces, the perpendicular measurement of only one end may be misleading. I have found a better test is to fashion two pieces of aluminum foil with a hole in the center, place on top of the filter and one on the bottom, install the filter in the housing, hand tighten to snug (not tight, tight), unscrew the housing and then look to see if there is a groove in the foil to indicate a secure seal.

To ensure a good seal (and as recommended by the filter manufacturer), I always make sure the top and bottom filter gasket surfaces are clean (no grit) and have a light coating of silicon plumbers' grease to affect a good seal.

Q--What size "O" rings are used? I wanted to get some spares at the hardware store.

A--Unfortunately the O-rings used by the manufacturer of the filter housings are a non-standard size. You can special order them from Pentek (10 inch slimline filter housing). We offer a PortaWell Maintenance kit that contains 2 spare O-rings, food grade silicon O-ring grease, and a filter housing wrench.

Q-- Is PortaWell capable of everyday use under the sink.

A—PortaWell is usable for under sink water filtration, however you would need to do some plumbing changes to bypass the pump—easy thing to do but would require some different fittings that are available at any hardware store.

Q—My filter housing is hard to loosen after I have used it. What do I need to do?

A couple of things I have found in working with the filter holders—only hand tighten them rather than tighten too snugly as the O-ring is what makes the seal. Occasionally you may need to clean the O-ring and O-ring groove and apply a small amount of plumber's silicon grease to ensure a watertight seal. Also, I have found the pump will actually pressurize the filter holders making them more difficult to untwist. I either let it sit for a few minutes to release the pressure or just remove the outlet hose between the pump and the first filter housing.

We now offer a maintenance kit option that includes a filter wrench, silicon grease and replacement O-rings.

Q—How can I sanitize my PortaWell after use to ensure my filtered water is free of harmful microbes?

A—It is important to use good practices when working with potentially contaminated water. The ceramic filter acts as the final filter for removal of harmful microbes so anything downstream of this filter should remain sterile during use. PortaWell can be sanitized by mixing up a

solution of ~200 ppm chlorine bleach solution (approx. 1 gallon), pumping into the system and letting sit for 30 minutes.

After use (and if unit will not be used within the next 72 hours), the storage procedure listed in the PortaWell user guide should be followed.

Q—I am using PortaWell to filter some water that I have stored in barrels for six years. Suddenly the pump is sounding different and stops and starts. Is there something I can do as I don't want it to fail on me.

A—If the back pressure on the pump exceeds 45 psi, the pump has a pressure switch that will cause it to shut off. It sounds like your stored water may have some green algae it which will quickly foul the ceramic filter. This will not damage the pump, but you may have to pretreat the water with chlorine, and let the algae settle out to get better results. The ceramic filter is cleanable and can be restored to full flow.

Q—I purchased an 8-amp hr. lead acid battery from you to power my PortaWell. Do I need to charge it before I can use it?

A—The Interstate battery we supply from our website comes to you fully charged and ready for use; however, lead acid batteries will self-discharge about 6% per month. For long term storage it is best to keep the battery charged meaning it should be topped off with a float charger (@2 amps max) every three to 4 months. If the battery is allowed to go flat (fully discharged), it will likely reduce the capacity and longevity of the battery.

Q--> I recently purchased a PortaWell, got set up, and tried two different water sources to test the product before it was really needed. One was from my rain barrel, and I could taste the barrel. One was from a local creek, and I could taste dirt. I didn't swallow either of the test sources. I ran both for a minute or two before

testing, pump and water flow were good. Not sure why I would be getting a taste in the water.

A--The filter we provide that can improve taste is the activated carbon (carbon block) and that is for the reduction of chlorine and certain organic chemicals. Taste can be also affected by dissolved solids (like salt) and only reverse osmosis or ion exchange can remove these.

We supply the three filters that remove the most common contaminants that affect human health: Ceramic to reduce microbes, sediment to reduce particulate and activated charcoal to reduce chlorine and organics like herbicides and pesticides.

About your application and not knowing the specifics of your water source, let me offer some things to try from my experience. Water from a slow-moving stream can carry significant organic matter including moss and algae that can affect taste. I have filtered water from such a source and seen the same green or yellow cast. I think it is chlorophyll and because it is in solution, the filters I used did not remove it. I also took water from a pond that was heavily laden with particulate (duck, swans and goose dropping), and the water filtered crystal clear (after I had pretreated the water to let the particulate settle out).

I have also found the carbon filter works better if you let it soak for a few minutes in the filter housing before you use it to remove contaminants. I think this opens the pores of the activated charcoal to give more surface area for trapping the chemical contaminants. You might try that.

A couple of specialty filters you might consider for your situation that are compatible with PortaWell: a media filled ceramic filter made by AquaCera. It is called Cerametix (Part number W9522650). It claims very good reduction of a wide variety of organic chemicals. Another one is made by Argonide called NanoCeram PAC. We offer both of these on our website, but you can get them now online from other sources.

Q—Is PortaWell plug and play meaning it doesn't require any action or expertise by the user?

A—PortaWell is not what you would call "plug and play" as it requires some knowledge and aptitude by the user. The user should have (or access to someone who has):

- *Basic mechanical abilities to install the filters and clean the filter housings after use.*
- *A general knowledge of what contaminants an available water source most likely contains and which filter type and sequence to choose.*
- *Ability to connect power to PortaWell and recharge a common 12-volt battery, either from a battery charger or solar panel/charge controller.*