

How to Care for Your New Spa

Spa Care

No doubt about it you will get a lot of conflicting advice on Spa Care. Part of the reason is that a lot of people in the business don't really bother to understand hot water chemistry.

The problem is that if you don't have an understanding of your own water you can actually harm your hot tub using some of the products on the market today. Not because they are bad products, they just shouldn't be used with your particular water values.

Test Your Fill Water First

This is your most important first step!

- Test it using test strips the brand is not really important.
- Focus on your pH and total alkalinity because these values affect how your sanitizers will perform.
- The pH and total alkalinity are also important to the surface of your hot tub and your equipment.
- It's important to know and correct for proper pH and alkalinity before you add sanitizers.
- Sanitizers will affect the pH and TA.
- City water will be pretty close to being in the correct range for pH and total alkalinity.
- Well water will need to balance it in order to treat problems like high minerals.

NOTE: High or Low can cause damage to your equipment and your hot tub shell. If your pH and alkalinity are high, scale can form on your heater element and on the hot tub shell itself, it feels like sandpaper. While the scale on the tub is easily removed with muriatic acid the scale on your heater element will remain and cause problems with heating. If your pH and alkalinity are LOW the acidity of the water will eat into anything metal or plaster. Heater elements are very susceptible to low pH. It eats holes right into them and causes water to contact the electrical part of the element, which will short it out and cause GFCI tripping. This can happen in a surprisingly short period of time if your water is aggressive.

pH and Alkalinity Perfect values

- pH 7.2 to 7.8
- TA 80 to 140

NOTE: Everyone needs to think about correction at minimum values above.

Correcting High pH and Total Alkalinity

- Add some kind of acid to lower it.
- You can use white vinegar or the pH down.
- The key is to go SLOWLY.
- Over correcting will be on the more dangerous side, corrosive!
- If you are using bromine the pH and alkalinity will come down naturally because bromine is very acidic.
 - You may not want to treat it at all just let it drift lower gradually unless you are off the scale on the high side.
- Run your hot tub for at least 6 hours after corrections have been made to determine the effectiveness.

NOTE: If you are using bromine as a sanitizer and a test kit that uses drops of phenol red to test pH you can be tricked into thinking that your pH is high when in fact it could be LOW. Use test strips and always verify both values pH and total alkalinity! Typically if the total alkalinity is high so is your pH. If your total alkalinity is low your pH either is low or will be low soon!

Correcting LOW pH and Total Alkalinity

- You can use pH UP and Alkalinity Increase
- Sodium Bicarbonate, if you don't recognize the chemical its Arm and Hammer Baking Soda!

NOTE: A related chemical, Soda Ash or Sodium Carbonate, is much too harsh to use in the hot tub environment. Be sure its Sodium Bicarbonate you are using. Sodium Bicarbonate feeds the total alkalinity of the water which will raise the pH slowly and buffer it against change. Keep in mind that EVERY product you add to your hot tub has a pH value.

Sanitizers

Now that your pH and alkalinity have been adjusted to the proper range it's time to consider sanitizers.

- Sanitizers are a MUST to keep the water free of bacteria!
- The most common sanitizers for hot tubs are Chlorine and Bromine.
- Both of these chemicals are in the halogen family.
- Bromine
 - More stable in heat and turbulence became popular for hot tubs.
 - The convenience of a tablet.
 - Has distinct smell associated with it.
 - Has a very low pH that erodes the pH of the water.
 - The feeder gets stuck up against the skimmer
 - Corrosive water is being sucked right into the pump and then through the heater.
 - It needs regular shocking to eliminate the bromines that form with exposure to ammonia.
 - A common waste product of bather load.
 - Bromines are very irritating to the throat.
 - Shocking with a non-chlorine shock like potassium monopersulfate (MPS) can reduce the bromines that are strangling you when you open the cover.
- Chlorine
 - I prefer and highly recommend Sodium dichlor as a primary sanitizer for hot tubs.
 - It is completely soluble in water.
 - It is a stabilized chlorine product.
 - It is that it has a neutral pH.
 - It will not affect the pH balance of your water.
 - For hot tub use it is inexpensive as well.
 - The disadvantage is its granular form.
 - It must be added regularly as needed a couple of tablespoons at a time.
 - Use your test strips to determine when chlorine levels are falling below 1 ppm.
 - Chlorine combines with ammonia and nitrogen as well forming chloramines.
 - They can irritate too, and often are mistaken for high chlorine levels.
 - But it is amazing how shocking the water with a good old dose (like a third of a cup) will straighten everything out.
 - With spas under covers there is always a bunch of chemical laden steam that rises up to you when you open the cover. Don't stand there breathing it, let it gas off a little before everyone jumps in.

NOTE: Dichlor is not the only type of chlorine on the market. Other chlorines can do the job of sanitizing but their pH values vary greatly! Liquid Chlorine has a pH of 13! That will affect your hot tub PH balance to the high side! Another chlorine on the market is Trichlor. This product comes in a granular form and tablet form. It has a pH of 2 which is very low and it will bring your PH down very quickly which can cause damage to your heater and other metal parts (don't use

it). Lithium Hypochlorite is granular chlorine that is usable for hot tubs. It also has a neutral pH but is harder to find and little more expensive than dichlor and perfectly acceptable for hot tubs.

Keep in mind that chlorine and bromine are oxidizers which means they react to organic materials. Always use a clean dry scoop for handling them. Keep them away from fertilizers or other organic items like motor oil etc. they can cause fires if not protected from organics. Never mix two chemicals together in the same container.

Ozone Generators

If your hot tub came equipped with an ozone generator you will find that you will need very little additional sanitizer to keep your hot tub in good shape. Ozone is a gas that is injected into your hot tub thru various means. It kills only when in direct contact with the water there is very little residual effect. That's why it is necessary to provide backup sanitation. Again, Dichlor is the perfect backup sanitizer for an ozone treated hot tub. You still and always need to maintain your pH and alkalinity levels according to the correct values. But, using dichlor with ozone will greatly reduce your efforts at maintaining PH and Alkalinity because you won't be adding products that increase or decrease your water balance. Ozone can build up under spa covers and as a gas it will cloud around you when you take the cover off. I would be kind of careful breathing this; it's nothing you want to linger around. Try turning the pump on high and the blower on too and let it run a while with the cover off so it can gas off. Also if you have one jet that feeds ozone to your hot tub you might not want to sit in front of it. Ozone is an oxidizer; you don't want it oxidizing your calf.

Alternative Sanitizers

There several alternative type sanitizers out there. One is Baquacil a hydrogen peroxide based system. I'm not really a fan of it and it's expensive. Salt chlorination systems for hot tubs are not extremely popular yet but I feel it is coming. A salt chlorinated hot tub uses a salt base in the water. A chlorine generator converts this salt to chlorine by using a small electrical charge. It's pretty amazing and is becoming very popular for pools. Spas do not need to be emptied as often and maintenance is at a minimum. UV Sterilizers are also being tried on hot tubs. If you have one you still need maintain some backup chlorination with dichlor. This can be as little as 1 PPM which is barely noticeable. Mineral Alternatives include products like Nature 2 and the Spa Frog. These products are actually pretty good to cut back on chlorine use. They contain silver (a bactericide) and copper (an algacide). They don't replace chlorine but you can often reduce the amount of residual chlorine in your hot tub. They share the job so the chlorine goes further. These products come in canisters that fit into your spa filter or inline and they last about 3 months.

Draining and cleaning

Depending on the bather load hot tubs should be drained and fresh fill water added at least once a quarter. Heavy use could indicate more frequent draining. Hot tub parties definitely require a drain and fill! Anytime you start having problems with water balance, smell, clarity etc., it's always okay to drain and start over! Total dissolved solids build up over time and a good drain and fresh water fill eliminate them and get you back into sparkling water. Sometimes when you can't drain the whole spa diluting it will help. Drain about half or even a third and fill it back up again.

Problem Water Issues

If your water isn't from city sources and you have high levels of iron or tannins, or calcium you will need to take some additional steps to make your water crisp and clear. Metals in the water require a product made for such issues. There are two types. One sequesters the metals so they can be filtered out. This requires attention to your filter! The small filters in many hot tubs can become clogged with the sequestered metal quickly. You will want to monitor your filter after adding a sequestering agent and clean it as needed! The other type chelates or surrounds the metal to keep it from sticking to the walls or other surface. Both may lower your pH somewhat. Once you get your water clear you can

proceed with other steps. Tannins are organic and can be bleached out using Dichlor. It may take a little more than a normal dose but it will correct itself eventually.

Cloudy Water

If your water just isn't looking clean and clear the best course of action is to shock it. Many times cloudy water is caused by contaminants that need to be removed before using your hot tub. Dichlor in a heavy dose can correct any bacterial problems that may exist. Clarifiers do not sanitize cloudy water! Always start with a shock of some sort. Potassium Monopersulfate can be used as well. This product is sold as a non-chlorine shock. It acts by reducing the combined chlorines in your hot tub and freeing up the chlorine molecules so that they can go back to work disinfecting your hot tub. A chlorine (or bromine) base must be present however for it to work as advertised. One of the things i love about dichlor is that it can do this same job just by adding extra. Draining is also an option especially if it's been awhile. You may have a buildup of total dissolved solids that aren't easily shocked away. Sometimes a fresh fill is your best option with a heavy dose of dichlor at start up to eliminate bacteria in the lines.

Algae

A covered hot tub with adequate sanitizer should not get algae. So if there is an alga present in your tub you need to dose it hard with dichlor. A third of a cup and run it for a couple of hours on high speed should knock it out. You may not be able to use the same day because of high chlorine levels but it will do the job.

Warning

Hot tubs are maintained and used at a very friendly temperature to bacteria and viruses. Sanitation is essential. If it doesn't smell clean and fresh, if it's cloudy, with a lot of dirty foam it probably isn't safe to use.