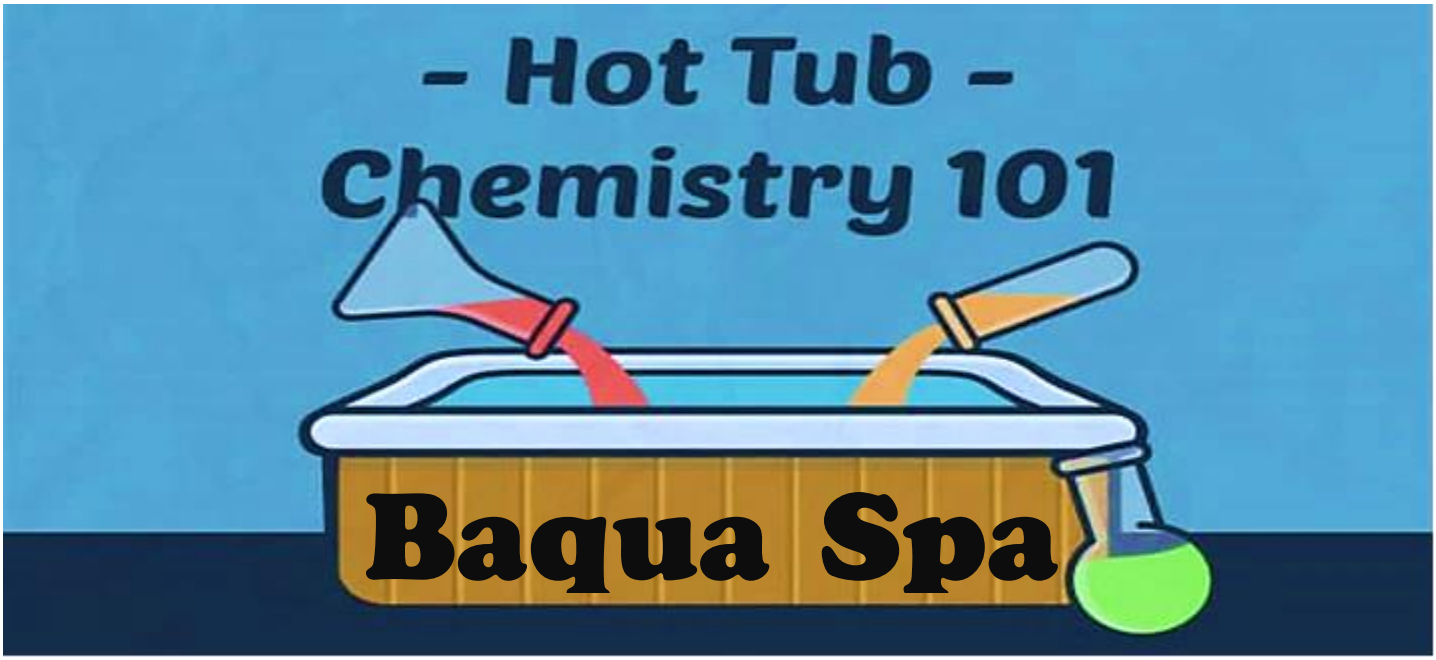


WATER BALANCE

By maintaining balanced water in your spa, it will stay cleaner and provide more enjoyable uses. Problems such as corrosion and scaling can develop if the spa water is out of balance for any period of time.

- **Baqua Spa Sanitizer**
- **Baqua Spa Oxidizer**
- **Ph.**

These problems can arise very quickly because of the small amount of hot water a spa contains. It is easy to see the importance of having a consistent balance of the following six properties:

- **Alkalinity**
- **Calcium Hardness**
- **Total Dissolved Solids**

Take a water sample to Swim Rite once a month or after refilling the spa.

The spa water balance is constantly changing due to usage, location, and water addition. Swim Rite Pools has the equipment and expertise to analyze your spa water and recommend exactly what you'll need to balance your water.

Test the spa water at least twice a week

Take a pool water sample to Swim Rite once a month during the season for a complete analysis, or after significant make up water is added. Here are a few testing tips to keep in mind when bringing a water sample in to Swim Rite:

- Fill sample bottle to the top. We do not need that much water but it is easier for us.
- Take the water in a water sample bottle or a plastic bag.
- Bring the sample to Swim Rite as soon as you take it, don't let the water sit around. Otherwise the sample will be less accurate and we might not get valid readings.

WHAT IS BAQUA SPA SANITIZER?

Baqua Spa Sanitizer is a highly effective polymeric spa sanitizer that contains no chlorine and is highly stable in use. Baqua Spa Sanitizer is derived from the same basic chemistry found in a number of pharmaceutical and cosmetic products. In fact, the active ingredient is actually used in some contact lens cleaning solutions. Unlike chlorine and bromine Baqua Spa Sanitizer is not affected by sunlight, temperature or Ph. fluctuations. This -stability gives you two important benefits. First, Baqua Spa Sanitizer provides better and more consistent bacteria control. Second, your Baqua Spa Sanitizer level needs to be tested only once a week. Baqua Spa Sanitizer eliminates some of the problems associated with chlorine, such as bleaching hair, fabrics, vinyl liners, etc. And you'll be far less likely to experience skin or eye irritation.

Add ONLY one chemical at a time with at least 15 minutes in-between

When adding chemicals, do NOT have the jets running!

WHAT IS BAQUA SPA OXIDIZER?

The Baqua spa Oxidizer is a non-chlorine shock for Baqua Spa system. The Oxidizer is a liquid, which consists of 7 ½% specially stabilized hydrogen peroxide. This product creates sparkling clean spa water by-oxidizing organic compounds. The general range for Baqua spa Oxidizer is between 10-100 ppm. Oxidizer should be added on a weekly basis to maintain the proper level.

WHAT IS PH?

The Ph. of water is a measure of its acidity or basicity. Factors such as rain, dust, swimmer wastes and algae affect a spa's Ph. The Ph. range runs from 0 to 14 with 7 being neutral (that is, not acidic or basic). Values less than 7 are acidic and values greater than 7 are basic. Ph. must be maintained with-in the recommended range to ensure bather comfort and prevent corrosion and scaling. The Ph. Scale is logarithmic –

When lowering the Ph. "broadcast" the Ph. Decreaser across the tub

-that is, a unit change in Ph. represents a ten-fold increase in acidity or basicity. Ph. values increase or decrease in geometric ratios, meaning that spa water with a Ph. of 7.2 is 10 times more acidic than one at 7.3 and a water sample at a Ph. of 7.2 is 100 times more acidic than one at 7.4.In order to lower the Ph. you can use Ph. Decreaser to adjust the level to 7.4 and if you need to lower it you can use Ph. Increaser to adjust the level to 7.4 as well.

When using PH Decreaser always have the cover at least ½ off

WHAT IS TOTAL ALKALINITY?

Total Alkalinity refers to the ability of the spa water to resist a change in the Ph. The key purpose of Total Alkalinity serves to help manage or control the Ph. in the spa. It does this by acting as a buffer so that when materials are added to a spa that would otherwise cause the Ph. to go up or down, these changes are controlled and does not result in severe changes to spa water balance. When a substance is added to spa water that could affect the Ph., the Total Alkalinity will react to neutralize it and keep the Ph. in the desired range. Total Alkalinity does not determine what the Ph. will be,-

When lowering the Total Alkalinity DUMP the Ph. Decreaser in the center of the tub without the blower running

-but rather acts to help keep the Ph. in the range desired. Total Alkalinity is measured in parts per million (ppm) using a Total Alkalinity test kit. It is best kept in the ranges of 80-120 ppm. When the Total Alkalinity value is less than 80 ppm, the water can become aggressive, causing eye irritation, itching and corrosion of pipes. The Ph. can also swing easily upward, downward and back again, which is called "Ph. Bounce". If the value is higher than 120 ppm the water can become cloudy, scale forming, Ph. will tend to drift upward and cause eye irritation.

ALWAYS! Adjust the Total Alkalinity before the PH

WHAT IS CALCIUM HARDNESS?

Calcium is important since high levels are unstable, and can become even more unstable if the Ph. or the Total Alkalinity rise above the normal levels. These unbalances can result in cloudy water and/or scale. In addition, calcium does not like warm water. As water temperatures rise, calcium becomes more likely to precipitate out of solution. Calcium is actually more soluble in cold water, which is why scaling of heater equipment is so common. With all of the difficulty's calcium can cause, it would seem logical to use soft water in filling a spa. However, this is not the case! While high calcium levels can cause problems with cloudy water and scale, soft or low-calcium water is also of concern. Such water is aggressive and will actually remove calcium from plaster in order to satisfy its need for the mineral. If the spa is vinyl or -fiberglass, the low calcium water will actually attack metal fittings and heaters resulting in destruction of the fittings or pinhole leaks in the heater. When such corrosion occurs, it is also common for stains to appear on spa surfaces. Calcium content is best in the range of 200-400 ppm. Unlike Ph. or Alkalinity, however either of which can be raised or lowered with reasonable ease, calcium levels cannot. Adding Hardness increaser to the water easily raises calcium levels. Conversely, there is no simple chemical addition that can be made to reduce calcium hardness. The only way to reduce calcium hardness levels in the spa water is through dilution with water of lesser hardness.

NEVER fill a hot tub with filtered or soft water!

WHAT IS TOTAL DISSOLVED SOLIDS?

When TDS exceeds approximately 1500 ppm, problems may begin to occur.

Total dissolved solids (TDS) are normally the least worrisome factor. TDS is the sum of all materials dissolved in the water and normally runs in the range of 250 ppm and higher. TDS is comprised of many different chemical compounds, which means that the issue of how much is too much actually -depends more on what they consist of, than how much there is. For example, ordinary salt is extremely soluble and is therefore unlikely to cause a problem, whereas, as we have seen, calcium compounds can be a problem even at fairly low levels. In general, when TDS exceeds approximately 1500 ppm, problems may begin to occur. At elevated levels, TDS can lead to cloudy or hazy water, difficulty in maintaining water balance, reduction in sanitizer activity and foaming. Unfortunately, the only way to reduce TDS is to drain the water replace it with fresh water.

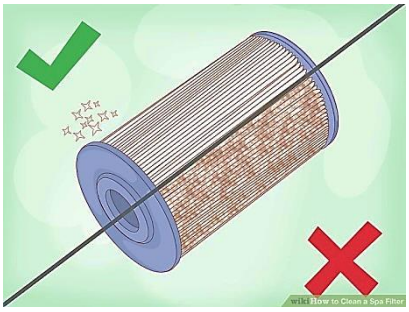
PREGNANT WOMEN SHOULDN'T STAY IN A SPA TOO LONG

Pregnant Women who enjoy relaxing in the hot tub shouldn't stay in more than 10 minutes, says a study published recently. Too much spa time can raise a women's body temperature enough to cause malformations in the fetus, said the study, appearing as a letter in the New England Journal of Medicine. According to the latest research, pregnant women should not spend more than 10 minutes in a spa when the water is 104 degrees. To reach this conclusion, the researchers conducted an experiment on 24 young, non-pregnant women to see how long it takes for their inner body temperature to reach 102, the point that can be hazardous to the fetus. They found that some people heat twice as fast as others do. In a 104-degree tub, some women's bodies reached 102 in as little as 12 minutes, while others took 23 minutes. "We conclude that at least in non-pregnant women, subjective discomfort is not wholly reliable as a safeguard against overheating and those time limits should be used," the researchers wrote.

FACTS ON FILTER CLEANING

Chemically clean your filter every 2 weeks!

Filter cartridges use non-woven fabrics to trap spa debris. As spa water is circulated, it passes through the filter where all types of debris such as organic matter, bather waste, scale and rust are trapped and eventually removed via hosing off a cartridge filter. However only hosing off the filter cartridge is removing only what can been seen, like washing your hair without shampoo. Filter cartridges are cleaned by soaking in a filter cleaner and then rinsed with a garden hose. Cleaned cartridges are about 65% to 75% as effective as new cartridges.



1. **Clean the filter at least 3-6 times per water change.**
2. **NEVER soak the cartridge in chemical solution more than 24 hours.**
3. **Be sure to thoroughly rinse the filter before returning it to service.**
4. **Allow cartridge to dry before returning it to service. This will allow the fibers to expand and fluff up thus providing more effective filter area.**

CIRCULATION AND FILTRATION

Hosing off the cartridge without using a filter cleaner is like washing your hair without shampoo!

The more the spa is used and the warmer it is, the more the filter needs to run. Filtration should be good enough to filter out fine particles of dirt, this helps to keep the spa water clear. The more particles that the filter can remove, the fewer chemicals you should need to add. Proper filtration will remove most of the suspended debris from your spa. However, filtration alone is not enough.

The amount of bacteria doubles every 24 hours in a filter cartridge!

Chlorination is required to disinfect spa water. The proper combination of filtration and sanitizer is necessary to keep spa water sparkling clear.

HOUSEKEEPING

Along with keeping your spa water balanced, you will also need to take good care of the spa itself. Here is a brief list of the things you will need to do that will prolong the life of your spa because it is well taken care of.

1. **Clean your cover every other week with a Spa Cover Cleaner, especially on the water side.**
2. **Clean your spa shell at the waterline regularly with Spa Surface Cleaner.**
3. **Clean your spa filter at least once every 2-4 weeks with Filter Cleaner.**

NEVER LET THE SPA WATER TEMPERATURE RISE ABOVE 104 DEGREES FAHRENHEIT!

FYI

- Never let the spa water temperature rise above 104 degrees Fahrenheit. Temperatures higher than this can place undue strain on the cardiovascular system.
- Limit spa use to no more than 15 minutes. Longer exposure can cause physical damage.
- Persons with diabetes, high blood pressure, heart disease or other cardiovascular conditions should consult their Physician before using the spa.
- Persons with open sores or any type of infection should not use the spa. The hot water is an ideal environment for spreading infection, especially if sanitizer levels are not properly maintained.

WATER CHANGING GUIDELINES

It is important to understand that a spa is a small body of water. Constant use of the spa means that bathers will leave large amounts of dirt, perspiration, body oils, deodorant, make-up and other various contaminants behind in the spa. The following formula is meant to help you determine how often your spa water will need to be changed to keep it healthy. Considerations for determining how often to change water and clean a spa:

Water needs to be changed every 6 weeks to 3 months

1. **Overall Use-Based on a 15 minute maximum soak time: 6 to 16 ounces of waste contamination each 15 minutes spent in the spa by any one soaker.**
2. **Size of Spa-How much contamination a spa can take is directly proportional to the number of gallons in the spa.**
3. **Temperature-Rate of contamination factor, the higher the temperature, the faster the contamination (104 degrees Fahrenheit maximum).**

Having friends over to use your spa is like taking a bath with them. How close are you with them?

It is easy to consider that the smaller a spa is and the more use it gets, the sooner the body of water will need to be changed. Each spa with any given number of gallons can only take so much contamination before operation problems start to develop. These problems can include: loss of water clarity, soaker discomfort and inadequate test results. In addition to these, filter media and elements are plugged more rapidly and disinfection is reduced to a minimum efficiency rate. To keep these problems from affecting your spa, use the following formula to help you make an educated estimation of the bather load contamination rate in the water.

BATHER LOAD CONTAMINATION= 1/3 GALLONS DIVIDED BY # OF BATHERS = DAYS TO EMPTY.

If 500 gallons is the amount of water in your spa you must take that and divide it by 3 which equals 167 then divide that number by the number of bathers per day and it equals the number of DAYS UNTIL the water needs to be drained!

EXAMPLE (500 ÷ 3) ÷ 2 = 84

HOW TO PERFORM A SYSTEM FLUSH ON YOUR SPA

System Flush is a chemical that is used to clean all Biofilm from the surface and internal parts in your spa. It is safe for use in any whirlpool, spa, or even fountain. Spa System Flush uses an "earth-friendly" formula without soaps, detergents or alcohol.

1. A system flush takes place prior to draining the existing water.
2. Remove filters and cover
3. Pour all but 2-3 ounces of SeaKlear System flush into your hot tub water.
   a. If you have diverter valves/ "zones" for the jets in your tub, be sure to open the different zones in order to flush all areas of your spa.
   b. Run your jets on high several times during the flushing period.
   c. YOUR TUB WILL FOAM! The system flush will generate a large amount of foam as it removes films, organics, etc. from the internal plumbing. Be prepared for remediation of the foam if your tub is indoors.
4. Let Circulate 12-24 hours.
5. Drain water, cleaning the inside shell as it drains. Use the reserved system flush to aid in removing any dried-on debris. Rinse well.

6. We recommend performing a system flush every time you drain the tub. With frequent flushing, the length of time and amount of system flush you need to add to the tub will diminish. (1/2 bottle of system flush and a minimum of 1 hour of flush time.)
7. While performing a system flush on your hot tub, it is also a great time to clean your filters. Start by using a hose or sprayer to remove large debris on filter and between pleats. Allow filters to dry. Once dry, submerge the filters in a mixture of filter cleaner and hot water. Let soak 24 hours. Rinse well. Let dry then return them to spa.

SeaKlear.

HOW TO SANITIZE YOUR SPA?

We recommend sanitizing your spa every time you drain. This procedure is intended to describe how to decontaminate a spa infested with both bacteria and bacterial by-products. Some signs of possible infection include: slime formation, cloudy water, musty odors, fecal contamination, bather rashers, flu-like symptoms suspected to have originated from spa use. In order to properly decontaminate your spa, you must take the follow steps:

1. Remove Filter, Chemically clean the filter with Baqua Spa or Brilliance Filter Cleaner or Replace the filter with a new one.
2. Drain the Spa.
3. Refill the Spa to ½ inch above the "high water" mark.
4. Add at least 100 ppm of Chlorine to the spa.
5. Cover the spa.
6. Circulate the water at a maximum rate for 30-45 minutes.
7. While water is circulating, turn the blowers on and off every 5 minutes.
8. While spa is draining, rinse sides several times.
9. Clean spa with either Baqua Spa or Brilliance Surface Cleaner.
10. Remove Excess water
11. Refill, replace filter, balance, start-up.

In order to deliver 100 ppm of Chlorine use the following measurements:
Dosages are in ounces for dry products and fluid oz. for liquid products

	Spa Volume (gallons)								
Chlorine Source	100	150	200	250	300	350	400	450	500
Sodium Hypochlorite - 12% bleach	15	22.5	30	37.5	45	52.5	60	67.5	75
Sodium Hypochlorite – 5.25%(household bleach)	35	52.5	70	87.5	105	122.5	140	157.5	175
Calcium Hypochlorite – 65%	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11
Lithium Hypochlorite – 35%	3.8	5.7	7.6	9.5	11.4	13.3	15.2	17.1	19
Sodium Dichlor – 56%	2.5	3.75	5	6.25	7.5	8.75	10	11.25	12.5