

TimeOut Spas

Crta N-340a, Km 290, 29780 Nerja, Málaga · Tel: 952 52 43 94

Spa Chemical Guide

Following is a guide based on our experience with water maintenance in spas. Having installed hundreds of spas we have had time to observe how all sorts of different systems and chemicals work and have distilled out what doesn't work very well or simply is not necessary. If you surf the net looking for water maintenance guides you will find some very complicated advice full of formulas touting a plethora of chemicals and "special products". In our experience it is very simple to maintain your water crystal clear and you don't need any additives or clarifiers - just good old chlorine, and very little of it to boot!

Pools vs. Spas

Many people seem to think that pools and spas are the same but nothing could be further from the truth. A residential pool contains a very large amount of water compared to a spa (30 to 60 times more) and consequently requires equally larger amounts of chemicals and attention. In addition to that there is an even more fundamental difference in that a spa is always covered and protected by its thermal cover while a pool is always open to the elements. This means, in practical terms, that huge amounts of bacteria are constantly entering into the pool water while the only bacteria getting into the spa is that brought in by the bathers. When you also consider that pools are generally at ground level where everything that blows past falls in, it becomes clear that reducing bacteria levels in a pool is a different kettle of fish than in a spa. Pools have to have a high chlorine level because of the rapid influx of bacteria (whether the pool is used or not) and also lose a lot of chlorine which just dissipates into the air. The sun, shining down in all its glory (something greatly appreciated here on the Costa) is also the foe as this creates algae, which again has to be eliminated with chemicals (algicide) and filtered out. And if that wasn't enough we have a huge amount of evaporation so we have to keep adding more water that then has to be adjusted as well!



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So What About A Spa?

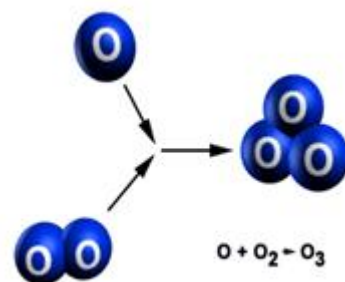
One question that many of our prospective customers ask is how long they can leave the water in the spa if they want to go away for a while. To answer this we use the analogy of a water tank. A water tank is covered all the time, like a spa and so the water stays clean because nothing is getting in to contaminate it. It might get a bit stale but as long as we are not talking periods of years the water will stay clear and clean and the same applies to a spa. As the only bacteria that gets into the spa is taken in by the bathers it is relatively easy to maintain the water. The cleaner you are the less there is to eliminate and if you keep your hair out even better! The object in a spa, as far as we are concerned, is to have as little sanitizer (chlorine or others) in the spa as possible when you want to use it. This means that we endeavour to only put in as much sanitizer as is necessary each time we use the spa in order to eliminate the bacteria we have just brought in. As the sanitizer and bacteria eliminate each other we end up with clear, clean water and little chemical residue although chlorine produces hypochloric acid and other salts in water applications so eventually the water has to be changed due to this build-up. When customers ask how much chlorine they need to put in or how often they need to change the water the answer has to be that it depends on them. If the spa is kept closed and the bathers always shower beforehand the water will last longer and need less chemicals and consequently will not need to be changed as often.



Ozonators

An ozonator is a device that creates ozone from air just like lightning does during a storm or like the ultraviolet rays from the sun do when creating the ozone layer that surrounds our planet. This ozone is then combined with the water in the filtration system to sanitize the water. Ozone is second only to

fluoride as the most powerful oxidizer known to man for water sanitation and is commonly used to purifying drinking water - the first drinking water purification plant using ozone was built in Nice, France in 1906.



In the quantities needed for water purification, ozone does not irritate bathers skin or equipment or have any noticeable smell, taste or colour and it eliminates much of the routine maintenance because it does such an effective

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job of keeping the water clean. This system eliminates many different kinds of bacteria leaving the filter to the job of filtering out all the debris however because of the toxic nature of ozone it cannot be used in sufficient quantities to work entirely alone and therefore has to be supplemented with some chlorine or bromine - but up to 70% less! All our spas come with an ozonator included because we want our customers to have the cleanest and most chemical-free water in their spa. Please refer to our Ozone Page if you would like more detailed technical information about ozone and ozonators.

Filters



A very large part of keeping your spa water crystal clear is your filter. A clogged filter or a filter full of sun cream will not clean your water and can even stop your heater from working! Luckily cleaning the filter is easy. Just take it out and spray water from your hose on it to remove debris trapped in the pleats or you can simply pop it into the dishwasher (not too hot!) and clean it like that. This should be done every week or two but like all these guidelines it really depends on how much the spa is being used.

So Lets Get Started!

Filling Your Spa

When you fill your spa you do it with your garden hose. Make sure the hose contains fresh water, let it run first, until all the old water in the hose is gone. Fill the spa to the indicator mark on the filter housing and then plug it back in. Once the spa has gone through its startup routine and is operative with the pumps functional you can proceed to adjusting the water.



Eliminating Excess Calcium

If you live in an area where there is a lot of calcium in the water it is advisable to remove some of the calcium so that it does not form a crust on the surface of the spa, on the jets and in the pipes, pumps and heater. To do this use a calcium reducer product which you just pour in. This has to be done before adjusting the pH as it will reduce the alkalinity of the water. Do not fill the spa with softened water as this can damage the equipment and surface of the spa. Normally you only need to reduce the calcium content of the water slightly and this can also be done later on if you notice a grittiness on the surface of the shell. Calcium deposits can easily be scrubbed off the spa using a sponge or other non-abrasive scrubber.



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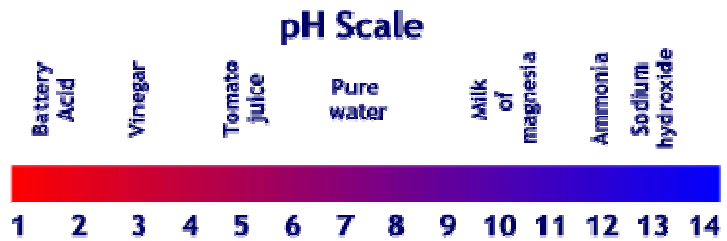
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Checking and Adjusting The pH

Before the water can be adjusted it has to be tested with the test strips. The test that is important at this stage is the pH which must be within 7,2 and 7,8 ppm or the sanitizer won't work as efficiently. What this means in practical terms is that if the pH is not right you will have to put a lot of chlorine, bromine or whatever other sanitizer you use into the water and most of it won't work so you end up with a lot of smelly chemicals and not very clear water. To balance the pH we test the water with a strip

and depending on the result add pH + to raise a low reading or pH- to lower a high reading. In our area the water is generally fine but has a tendency to go up so we include in our chemical kit pH-

although for those clients that for some reason have a low pH problem we gladly exchange it for pH+. When adding pH adjuster first dissolve it in a glass or cup and be sure to turn the pumps on so that it will mix well as they take about 3 hours to work so you have to wait before you can test again. As the water is probably still heating to get up to bath temperature this shouldn't pose any problem. If, on the first attempt you do not get the water adjusted properly just repeat the procedure until you do. Quite often the water out of the tap is already balanced or quite close.



Shocking The Water

Once you have the pH adjusted you need to shock the water. This means that you put in a high dose of chlorine in order to clear all the bacteria out of the water so that you start with perfectly clean water. Although the normal level of chlorine when you are using the spa would be 1-3 ppm you now want to get it up to 10 ppm so you need to throw in about 2 tablespoons per cubic meter (1000 liters) of water. Test again after about an hour and if the level has slipped below 10 ppm raise it again with a bit more chlorine. You need to maintain the level at 10 ppm for at least 4 hours to insure that the water is perfectly clean so if you test after 1 hour and it has slipped down below 10 ppm you have to add more chlorine and then start counting your 4 hours again. To bring the level down afterwards just leave the cover open on the spa and the extra



chlorine will dissipate into the air. When adding chlorine in granulated form you can just sprinkle it onto the surface of the water with the pumps on as it dissolves very quickly. The kind of chlorine to use is Dichlor 55%, never use pool chlorine (trichlor) as it is very aggressive and can damage the pumps and surface of the spa. Do not sprinkle chlorine on the surface of the spa, control panel or pillows as it can cause damage.

Many people are worried about the use of chlorine in their spa water. When asked why, most people will answer that they don't like the smell. Actually chlorine is not the culprit here, at least not directly, Most problems with chlorine occur when the water chemistry is not correct, here is why. When any type of chlorine is added to

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water, it usually forms hypochlorous acid (HOCl -the most powerful cleansing form of chlorine in water) and hypochlorite ion (OCI a relatively weak form of chlorine in water). The percentage of HOCl and OCI is determined by the pH of the water. As the pH goes up, less of the chlorine is in the powerful cleansing form and more of the chlorine is in the weaker form and this why you have to keep your pH properly adjusted. The total sum of HOCl and OCI is called the "free available chlorine". Chlorine can combine with ammonia and nitrogen compounds in the water to form chloramines, sometimes called "combined chlorine". By combining with ammonia and nitrogen the free chlorine in the water is disabled. Chloramines are 60 to 80 times less effective than free chlorine but by adding a mega-dose of chlorine (shocking the water) you can eliminate these chloramines. Usually 3 to 6 times more chlorine than a normal dose is added to the water or the level of chlorine is raised to 10 ppm and held there for 4 hours. This is called super chlorination or shocking and needs to be done when you smell a strong smell of chlorine and but the water is not completely clear. To remove chloramines, the ratio of chlorine to ammonia must be at least 7.6 to 1. If this ratio is not obtained, then more chloramines will be produced so although it sounds odd the way to get rid of the chlorine smell is to add a LOT more chlorine as described above. Swimmers and bathers should not enter the water until the level of chlorine has dropped to below 3 ppm or less and this can be achieved, once again by leaving the cover open and allowing the excess chlorine to dissipate into the air.

Daily Maintenance

Now that your water is adjusted and sanitized your spa is ready to use! From now on all you have to do is to maintain the water by eliminating the bacteria that you bring in each time you use the spa. During the first weeks of use we recommend that you test the water every time you get out of the spa. If you do this you will soon realize how much chlorine you need to add in order to keep the water fresh. Perhaps you need a level tablespoon each time or perhaps it is every second time. As we have stressed before it all depends on use - how many people and how often. Once you have established your rhythm you will no longer need to test all the time and will test more to check on your pH level than to monitor the chlorine. Aim to maintain the chlorine level at 3-5 ppm when you get out so that next time you get in it will be below this level.

Weekly Maintenance

Once a week, if the spa is in regular use, you should test the water and adjust the pH if necessary. Also take a look at the filter and rinse out any debris that has collected there. If your home is a holiday home and you normally come for 2 - 3 weeks then do this before you leave so the spa is fresh for the next time. The water should be crystal clear all the time and should not smell. We recommend Aquachek strips



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for water testing purposes as they are quick, safe and accurate.

What If The Water Goes Funny?

If your water becomes cloudy or smelly you have not been using enough sanitizer and need to shock the water as described above. Be sure to check the filter at this time because the water might be cloudy because the filter is so full it cannot filter out the debris. Also check the pH because if it is way out of line then even though you put loads of chlorine in it will not work. The other cause of cloudy water is that the spa is not filtering long enough to remove the debris from the water. If you have a high bather load or the water becomes cloudy and your filtration is set for only 1 hour twice a day then it is not filtering long enough to remove the debris and no matter how much chlorine there is in the water it will remain cloudy. Refer to your owners manual for instructions on how to change the filter cycles or go to our Info page and download the Spa Pack Reference card or manual that applies to your spa and then adjust the filtration time.

The Last Resort

When your water won't go clear no matter what you do or if you simply don't want to have a bunch of chemicals in your water the solution is simple - Dump The Water!

As a spa normally contains less than 2000 liters of water it is not a big deal to refill it. If you have a garden you can use the water to water your garden, just make sure that the chlorine level is below 3 ppm and water away! Many times it is better to just empty the spa and start again. You have to change the water every 3 months or so anyways so don't worry about it. Most pools, even in winter, will evaporate more water in three months than it takes to fill your spa so just change the water, clean your filter and above all remember to

Enjoy Your Spa!

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