

# TimeOut Spas

## Spa water maintenance Guide

This Water Maintenance Guide for Spas, Hot Tubs, Jacuzzis and Swimspas is based on our experience with water maintenance in spas and hot tubs. Having installed hundreds of spas and hot tubs we have had the opportunity to observe how all sorts of different water maintenance systems and chemical treatments 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 information 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 if you don't neglect it you will rarely need anything other than calcium reducer, pH adjuster and good old dichlor, and very little of it to boot! Following is a general discussion of water maintenance in spas, hot tubs and jacuzzis however if you want a step by step guide for everyday water care please follow the link on our page in the menubar using the "Spa Info" tab go to our "Daily Water Care page.



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 hot tub (15 to 60 times more) and consequently requires equally larger amounts of chemicals and a lot of attention to maintain. 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 coming into the pool water while the only bacteria getting into the hot tub is that brought in by the bathers.

When you also consider that the water level in pools is generally at ground level (or lower) everything that blows past falls into the pool, so maintaining the water in a pool is a different kettle of fish than in a spa. Ask anyone who has a pool and they will tell you what a pain it can be! Pools also have to maintain a higher 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 there is a huge amount of evaporation so you constantly have to keep adding more water which has to be sanitized as well! A spa, because it is always covered by its thermal cover to keep the heat in, has none of these problems. Practically the only bacteria that gets into the spa is brought in by the bathers so very small amounts of chlorine are used to sanitize the water. Typically, after four people have been in the spa for 20 minutes you only need to put in one tablespoon of Dichlor when you are done to completely sanitize the water. Then, if you don't use the spa for several days, you don't need to put any more chlorine in at all. Next it is easy to heat a spa as it is built for it and you can keep it at a high temperature like 39 ° C at very low cost. Pools, as we know, are almost impossible to heat because the majority of pools are made out of concrete and this just absorbs all the heat. They also lose a lot of heat because of the large surface area of water, even if you have a pool cover. So you can spend a fortune trying to heat the pool and still find that you cannot use it for most of the year whereas the spa can be used all year 'round. Cool in the summer and warm in the winter.

Here in Spain water is quite scarce so the water losses suffered by pools are a serious consideration. In many places water is expensive or so scarce that you can't even fill the pool from your tap but have to buy water from private wells that it is then brought to you in trucks. Because of this many people do not drain their pool when it is not in use and either have to let the water go off and then need to dump huge amounts of chemicals in it to sanitize it again or they have to maintain the water all year 'round using even more chemicals!

Last the maintenance of a spa is really easy compared to a pool and we have even had customers who have had a house with a pool and after they have bought their spa have actually sold the house and moved the spa to a house with no pool! This is, of course, quite extreme however most people use their spa a lot more than the pool and it is quite typical to hear people say that they rarely even go in the pool.





**Chlorine and Bromine.** Many people are worried about the use of chlorine in their spa or hot tub 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 and here is why. When any type of chlorine is added to water, it usually forms hypochlorous acid (HOCl -the most powerful cleansing form of chlorine in water) and hypochlorite ion (OCI a relatively y

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 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 by leaving the cover open and allowing the excess chlorine to dissipate into the air. Many people believe that bromine is better than chlorine and that it is less likely to irritate the skin and does not smell and many spa dealers recommend it. We have experimented with every bromine system we have come across and have to say that we were never able to keep the water crystal clear using bromine. The claim that bromine does not smell is completely untrue although the smell is different from chlorine. Above, in the discussion of chlorine it has been made clear that the smell of chlorine comes from improper use and furthermore if the dichlor that we recommend is used properly there should never be an excess of chlorine in the water (except when shocking the water). This brings us to another of our objections to bromine. Everyone who owns a spa has a different rhythm of use, some people only use the spa now and then while others use it every day. Bromine is always supplied in slow dissolving tablet form and these tablets dissolve over a period of a few days releasing the bromine into the water. So, the problem here is obvious, if you are using your spa all the time it could be all right but if you aren't then there will always be too much bromine in the water. This is a problem common to all products that come in tablet form and why we recommend dichlor as it comes in a powder form so you can use exactly as much as you need, just adding a spoonful when you get out to eliminate the bacteria the bathers have brought in. The last problem with bromine is that, unlike chlorine, when you have too much of it in the water it does not dissipate. They call this a "bromine bank" as it accumulates in the water and it can be activated again by adding chlorine. So in the end even if you use only a bromine system you are going to have to add chlorine sometimes. The main point here is that a spa is not like a pool (as we have discussed above) and you do not need to maintain high levels of chlorine to keep the water perfectly clear.

## Ozonators, UV and Salt Systems



**Ozone Systems** An ozonator is a device that extracts 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. In a spa this ozone is combined with the water in the filtration system to sanitize the water. 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

water maintenance because it does such an effective 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!



**UV Systems Ultraviolet (UV)** pool and spa water sanitizers utilize a non-chemical process that uses germicidal UV light rays to sanitize water. Ultraviolet pool and spa sanitizers emit a high intensity germicidal light ray that alters or disrupts the DNA or RNA of targeted organisms such as algae, bacteria, viruses, cysts and protozoa. The highly concentrated electromagnetic energy also destroys organic matter, eliminating the formation of dangerous chlorine byproducts. Like ozone UV treatment does not irritate bathers skin or equipment or have any noticeable smell, taste or colour and is also used to purify drinking water so it is perfectly safe.

**Salt Systems** Salt Water Purification Systems use small amounts of salt that is dissolved into the water (becoming about half as salty as a human teardrop). As the water flows through the electrolytic cell, electrolysis separates the saline into its basic components, sodium and chlorine or bromide (depending on the type of salt used). Chlorine or bromine gas is produced by this process and goes to work in the cell chamber to oxidize bacteria and purify the water. If you would like more detailed technical information about Ozone, UV and Salt systems please follow the links from the "Spa Info" tab on the menubar on our website.



**How Often Do I Need To Change The Water?** Most of our customers know very little about spas and this is why we have written and published these guides on our site. One common question that many of our 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 or a hot tub, so the water stays clean because nothing is getting in to contaminate it. It might get a bit stale sitting there but as long as we are not talking periods of years the water will stay clear and clean for a long time and the same applies to a spa. As the only bacteria that gets in 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 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 buildup. 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. A basic rule of thumb is to change the water every three months if you are using the spa between 3 and 6 times a week and you can leave the spa unused and covered for up to a month and the water will be fine. Of course before you do this the water has to be well sanitized so there is no bacteria left in the water.



**Filters.** A very large part of keeping your spa or hot tub 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 it is being used.

We also have special filter cleaning liquids that you can use to give your filter a deep cleansing. Be sure to only use fresh water or the special filter cleaning liquid to clean your filter and never use any soaps or other household cleaning products. Your filter should last several years and we have them in stock if you need a new one. Many people keep a spare filter on hand so they can change the filter quickly and then take their time cleaning the dirty one, it is a convenient way to always have a clean filter in the spa.