Water testing for your Spa or Swimspa

A spa or Swimspa is one of the most wonderful, therapeutic, and lifestyle-enhancing home improvements that you can invest in. However, it is important to ensure the water in your spa or Swimspa is clear, clean, and hygienically safe, as some potentially harmful micro-organisms could otherwise cause problems if left unchecked.

During hand over you would have been given a Catalina Spas chemical starter pack. The starter pack has a chemical guide book and there are additional instructions in the owner's manual. However, some of the information differs slightly – not in any way detrimental but some wider parameters so we have produced the following to help you.

Your spa or swimspa is fitted with ozone generators as standard. Ozonators create ozone gas in a chamber and bubble it into the internal pipework and help to reduce the amount of sanitiser used. Ozone is a powerful oxidiser which kills bacteria as it passes through the ozonator. But even though an ozone unit is fitted a residual sanitiser must be maintained at the prescribed levels. Ozone units' effectiveness diminishes with age and should be checked or replaced after 2 years

There are 2 basic reasons for chemical treatment of your spa or Swimspa. They are;

1. The pH, how acid or alkali the water is

2. Sanitiser, the water must be sanitised so it is free from harmful infections, organisms, free from unsightly algae and other things like body oils and cosmetics

The two essential tests carried are for the disinfectant residual (normally Chlorine or Bromine), pH value. If these are not correct, then a person's health can be affected. We recommend daily checks to ensure bather comfort and safety. The ideal ranges are:

- Chlorine 3 – 5 mg/l (sanitiser)
- Bromine 4 – 6 mg/l (sanitiser)
- pH 7.2 – 7.6

Chlorine (sanitiser) is a fast and effective sanitiser, and its biocidal properties are well-established and proven.

There are two different types of Chlorine granules and they are safe and easy to use. There is sodium trichloroisocynurate dehydrate. This is stabilised chlorine and it helps keep chlorine in the water on warm sunny days. Then there is calcium hypochlorite which is non-stabilised and available in a quick dissolving form. Please note - Stabilised chlorine tablets (Trichloroisocyanuric acid) are also available but their use will invalidate the warranty.

For Chlorine, both the Free and Combined Chlorine levels are normally measured. Free Chlorine is the Chlorine that is available to 'fight' contaminants and is measured using test strips or DPD No1 tablet and suitable measuring device. The Combined Chlorine is chlorine that has already reacted with contaminants from the bathers (i.e., urea, ammonia, bacteria etc).

The Combined Chlorine value is obtained by measuring the Total Chlorine (Combined plus Free) and then subtracting the result of the Free Chlorine reading. The build-up of Combined Chlorine can lead to an enhanced 'chlorine odour' and an increase in bather irritation.

Generally, the Free: Combined ratio should never exceed 2:1 (i.e., the Combined should not exceed a third of the Total, but the Combined should be as low as possible).

Bromine (sanitiser) is also available as a sanitiser. Bromine is sold in granule or tablet form. The tablets are introduced to the water via a floating feeder or dispenser, bromine tablets should not be placed in the spa skimmer. Bromine is usually more expensive than chlorine and is sometimes preferred as it has less odour than chlorine. Bromine is tested either using bromine test strips or DPD no 1 tablets.

pH is a measurement of the acid or base value of the hot tub water and is important both for bather comfort and the effectiveness of the disinfectant. The pH range for a Hot Tub is between 7.2 and 7.6. This narrow target range is not only good for bather comfort but also necessary for the disinfection process to run efficiently. pH is measured using test strips or the Phenol Red tablets method.

Acids or pH reducer - Used to lower a high pH.

Alkalis or pH increasers - Used to raise a low pH.

Other tests - Water Balance

The above are the main two tests that need to be carried out to ensure everything in your Spa is satisfactory. However, there are many other parameters you may wish to measure to keep your hot tubs in 'tip top' condition especially the Alkalinity and Calcium Hardness if you are in a soft water area. Total Alkalinity and Calcium Hardness of the water must be balanced so that it is neither corrosive nor scale forming.

The Alkalinity of the water is a measure of the alkaline salts dissolved in it (carbonates, bicarbonates and hydroxides) and should not be confused with pH. The Total Alkalinity is a measure of the resistance to change in pH. The level of Alkalinity is important as it affects the control of the pH giving a buffering effect. If the Alkalinity level is below 50mg/l, then there is little effect on the control. This may cause what is known as 'pH bounce' – wide swings in pH values occurring with the addition of disinfectant and/or pH correction chemicals making it difficult to control. If the Total Alkalinity level is over 200mg/l, the buffering effect becomes too great and the pH is difficult to adjust and, therefore more pH adjuster is required. Depending on the type of disinfectant being used, the Alkalinity range should be (in the region of) 80 – 160mg/l.

Total Alkalinity is normally measured using test strips, a tablet count method or photometrically.

In soft water areas, with low natural alkalinity, it is easy to determine the quantity of sodium bicarbonate to be added each time a hot tub is refilled.

Calcium Hardness (the amount of Calcium or Magnesium salts) – the build-up of Calcium (or hard water) can leave Calcium deposits on hot tub surfaces, pipe work etc. Low Calcium can make the water foam and cause corrosion of metal surfaces. It is important to understand that a certain level of hardness (or calcium level, to be more accurate) is a good thing and, indeed, required to maintain the quality of hot tub water at optimum levels, and maintain the hot tub's equipment.

Start out by having your fill water tested for calcium, as this will determine your level of calcium hardness. Test kits to do this are available from your Catalina Spas retailer or on our web shop. High calcium levels (common in water obtained from ground sources) could cause cloudy water, scaling and scale deposits to form; too low calcium levels could lead to excessive foaming of the water and corrosion of metal surfaces. Calcium levels should be maintained at an ideal level of between 200mg/l – 400mg/l (or ppm – parts per million). The best time to test for calcium hardness is immediately after the spa is filled, whilst the water is still cold.

Most treatment products available for increasing calcium levels work more efficiently in cool water than they do in hot. We recommend you test the hardness levels every time you freshly fill your Spa/Swimspa. We supply a chemical for raising calcium levels if you have soft water. When correcting the calcium levels, it's a good idea to wait two to three days before retesting, as these products can take a while to fully dilute. If you accidentally add too much calcium increaser, simply drain 6" to 12" (150mm to 300mm) of water, top back up again, and retest.

There are no chemical products on the market for reducing calcium levels. If you live in an area with very hard source water, and your house is fitted with a water softener, then try filling your Spa with regular tap water up to 6" to 12" (150mm to 300mm) below the fill level, then fill the final 6" to 12" (150mm to 300mm) using water which has passed through the water softener. Important note: this is the only circumstance we recommend you can use softened water to fill. If you are unable to reduce high hardness levels, don't worry. Just ensure you diligently maintain your pH and alkalinity levels in balance (see above), and use our scale and stain inhibitor to lower the chance of scale precipitating out.

System Flush. We recommend that either quarterly or every six months you add our system flush to you spa water prior to draining. This will help remove any build-up of bio film and clean internal surfaces of the pipework, equipment and jets that are difficult to access.

WARNING

1. Always store chemicals in a cool dry place, secured away from children and animals.

2. Always follow manufacturer's instructions on chemical labels at all times.

3. Never mix chemicals, other than according to manufacturer's instructions.

4. Always add chemicals to water, never the other way round. If you have any questions, always speak to your supplier or call us on 01980 611555

Empty and refilling

Hot tubs are very small bodies of water with relatively very high bathing loads. As water is used and recirculated, water treatment products and other particulates that aren't removed by the filters build up over time, and there comes a point when even correct water maintenance regimes are applied, the water looks and feels "lank and lifeless", and the only corrective action remaining is to drain the hot tub down and refill. BISHTA recommends that water should ideally be changed a minimum of every three months to maintain water quality.

Swimspas and Swim trainers have a larger volume of water and are often kept at lower temperatures so they require draining less often so we recommend either a partial or full drain down every six months.

It is worth mentioning that if the water is cloudy and it is difficult to control the chemistry it is often easier, less expensive, and safer to simply drain and refill.

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