# Hot Water Basics For Service Pros

*Spas and hot tubs require a strategic plan for care*

**by Terry Arko**

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Many pros who begin servicing tubs often do so with a misperception that caring for a small spa/ hot tub will be easier and involve less chemical use and time than a swimming pool. Those who have cared for spas/ hot tubs know that nothing is further from the truth. These individuals have discovered that spas and hot tubs aren't just tiny swimming pools. In fact, a spa/hot tub is much more than just a tiny swimming pool.

There are many differences between a pool and a spa/ hot tub and these differences call for a different and more strategic plan for care. Listed below are some of the major differences between spa/hot tubs and pools:

- **Temperature** – The maximum temperature for most pools is 26°C (80°F), while spas/hot tubs range from 33°C to 40°C (92°F to 104°F).
- **Higher evaporation rate** – This leads to more scale and increased calcium levels, with air jets and blowers causing a quicker chemical reduction.
- **Water balance** – a smaller body of water means a greater effect on pH, total alkalinity, calcium hardness and TDS from added chemicals.
- **Bather load ratio** – three people in average spa/hot tub = 300 in a backyard swimming pool.

There are a few simple basics to consider when servicing a spa/hot tub. These also apply anytime a hot tub is drained and refilled. First, know your water. It is important to know what type of source water will be put into the spa/hot tub. Some areas have soft water and some have hard water, while some use well water and others use treated water from a municipality or city.

Soft water means that there is very little mineral content and the water will be aggressive to the equipment of the spa/ hot tub. If untreated, this can cause damage to the pump, filter or heater. To prevent this, calcium chloride should be added to the water. Calcium hardness should be maintained between 150 to 400ppm in a spa/hot tub.

Hard water contains a lot of minerals such as calcium and magnesium. This type of water will require special attention when balancing to account for the excess minerals. If hard water is not dealt with properly, it can lead to the formation of scale on tub surfaces and damage to the equipment. Scale can form fast in a spa/hot tub because calcium becomes a solid and drops out of solution in hot water. The calcium combines quickly with carbonates to form tough, damaging scale. In hard water areas it is recommended to use a stain and scale control additive at least once a week.

## Balance The Water

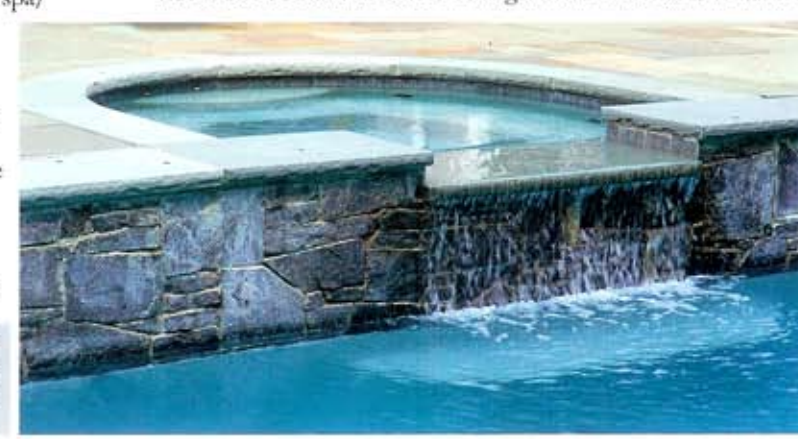
Balanced water is critical in a spa/hot tub. There are two main adjustments to be made when dealing with spa/hot tub water:

**Total Alkalinity –** This creates a buffer in the water so that it can resist any acids that may be added to the water. This is the first and most important adjustment to be made. Total alkalinity acts as a control to the pH. The pH cannot be properly adjusted if the total alkalinity is out of the suggested ranges. The recommended total alkalinity range in spas/hot tubs is 80 to 120 ppm.

**pH –** This is a measurement of the acids or bases in the water. A low pH indicates the water is primarily acidic. A high pH means that the water is more base or alkaline.

A good tool for adjusting and holding pH and alkalinity in place between drainings is to use a product that holds the pH steady by boosting the total alkalinity. The technology here raises up the alkalinity by adding a soft form of calcium to the water. The result is that the pH gets locked in and can't be easily affected by acids. This is an ideal product for use in soft water low mineral areas. These products are not recommended for hard water areas.

**Sanitize The Water –** When it comes to spa/hot tub sanitizers there are several choices, although chlorine and bromine are still the two most popular. Chlorine should be maintained at 3 ppm. The best type of chlorine to use for a hot tub is sodium di-chlor. This granular material is available



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