water quality & maintenance

SNZ
SPA SENSATIONZ

It is important to understand water chemistry before filling and operating the spa. Understanding water chemistry is a critical aspect of maintaining the quality and life of the spa. Improper water chemistry can have severe effects on the life of the Acrylic Surface, Plumbing, Jets, Filter Cartridge, Heater and Pumps.

IMPORTANT: The chemicals needed to maintain a clean, disinfected and attractive spa are potentially dangerous and may present hazards if not used properly.
Carefully follow the manufacturer's instructions for the use and storage of chemicals and follow the guidelines below:

- Before using chemicals, read labels and directions carefully. Follow label use instructions.
- Keep all chemicals out of reach of children.
- Chemicals for test kits should be replaced each year.
- Keep the original lids on all chemical containers and make sure the lids are closed tightly when not in use.
- Do not stack different chemicals on top of one another.
- Store spa chemicals in a clean, dry, well-ventilated area, preferably off the floor, to prevent contamination from other materials. Keep spa chemicals away from other chemicals and equipment used for garden and lawn maintenance.
- Keep liquid chemicals away from dry chemicals. Physically separate all different forms of chemicals.
- Do not store spa chemicals where other flammable items may mix with them.
- Never mix two chemicals together. Use a clean scoop for each chemical, and avoid combining materials from "old" and "new" containers.
- Always add the chemicals directly to the spa water, either in a suitable feeder or distributed evenly across the surface of the water or diluted and poured into the water. Follow label use instructions.
- Never add chemicals to the spa water while people are using the spa.
- Allow at least 1 hour with the jet pump on between any chemical addition.
- Carefully clean up any spilled chemicals with large amounts of water, to dilute and wash away the chemicals.
- Properly dispose of used chemical containers. Please follow local environmental regulations.
- Do not inhale dust or fumes from chemicals. If necessary, use proper protective devices for breathing, handling and eye protection. Promptly wash off any residues which get on the skin.
- Never reuse old chemical containers.
- If you have any questions regarding safe handling, storage or use of spa chemicals, contact the manufacturer of chemicals or the dealer.

Before filling the spa, determine the chemical make up of the "source water," (or water you use to fill the spa) by taking a sample to the local spa dealer for professional testing. Test results identify levels of metals and minerals in the water and determine if the source water needs adjustment when the spa is initially filled.

It is important to understand that spa water is different from swimming pool water. In a spa, water is heated to between 36-40°C, a temperature much warmer and more turbulent than swimming pool water; therefore, requiring different treatment.

It is important to test water regularly using test strips or a liquid test kit. By keeping water balanced, many problems that occur with spa water are avoided. The three most important factors in balancing spa water are pH, Total Alkalinity and Calcium Hardness.

UNDERSTANDING PH

The pH (Potential Hydrogen) is a measure of the relative acidity or alkalinity in the water on a scale of 1 to 14. Test the pH of the water regularly to maintain the proper pH level. Use test strips or liquid test kits to determine pH level. Pure water has a pH value of 7 which is neutral. Values above 7 are alkaline (base), and values below 7 are acidic. It is critical that the pH of spa water stay within the recommended range of 7.2 - 7.6. Severe problems can occur when pH balance is not maintained within this range.

If the pH level exceeds 7.6, dissolved minerals or scale can build up on the acrylic surface and clog the plumbing, filter cartridge and jets. Also, the sanitiser is less effective and the water may become cloudy if the pH level is too high. Add pH reducer (usually sodium bisulfate 'Spa Down'). Follow package instructions.

If pH falls below 7.2, the acid level in the water will begin to corrode the metal parts in the spa in particular the Heater Element or Jet Bearings. Also, sanitiser in the water dissipates more quickly and water may become irritating for users if the pH level is too low. Add a pH increaser (usually soda ash 'Spa Up').

IMPORTANT: It is important to check the pH level regularly. The pH level is affected by number of users, addition of new water, addition of various chemicals and the type of sanitiser used.

UNDERSTANDING TOTAL ALKALINITY

Total Alkalinity is the measure of the total levels of carbonates, bicarbonates, hydroxides and other alkaline substances in the water and the ability of the water to resist changes in pH level. Total Alkalinity acts as a buffer, preventing pH levels from changing as additional chemicals or other substances are added to the water. The recommended Total Alkalinity range is 100-150 ppm.

If Total Alkalinity is too low, the pH level fluctuates widely from high to low. Fluctuations in pH can cause corrosion or scaling of spa components. Add pH/Alkalinity Up (sodium hydrogen carbonate). Follow package instructions.

If the Total Alkalinity is too high, the pH level will tend to be high and may be difficult to bring down. It can be lowered by adding pH/Alkalinity Down (sodium bisulfate).

Once Total Alkalinity is balanced, it normally remains stable until the addition of water with a different Total Alkalinity.

UNDERSTANDING CALCIUM HARDNESS

Calcium Hardness is a measure of the total amount of dissolved calcium in the water. Spa water requires some calcium to be present, as calcium helps control the corrosive nature of the spa's water. Low calcium water (commonly known as soft water) is not recommended. The recommended range for calcium is between 100-300 ppm.

If calcium levels are too low (commonly known as soft water), scale build up, foaming, or corrosion to equipment and plumbing can occur. To raise the level of calcium use a Calcium Increaser until the calcium is within the recommended range.

If calcium levels are too high (commonly known as hard water), formations of scale on the spa's shell surface can occur. The only way to lower the calcium level is to drain part of the water and refill with soft water. If soft water is not available, or practical for you to use, a stain and scale control should be added to the water according to the instruction label. In addition, using a sequestering agent will prevent calcium and scale formations by chemically bonding with the calcium to keep it in solution form.

RECOMMENDED WATER BALANCE RANGES

It is extremely important to maintain the water chemistry of your spa, not only for health reasons but also for the protection of the spa components. Regular testing is paramount to maintaining water balance.

- Your pH level should be between 7.2 and 7.6.
- The total alkalinity should between 100 and 150 parts per million.
- Calcium hardness should be between 100 and 300 parts per million.
- Free chlorine should be between 1.5 to 3 parts per million.

Once pH, total alkalinity and calcium hardness are determined, adjust water so that the levels are within the recommended ranges above. If water is not maintained within the recommended ranges, problems such as cloudy water, scale, equipment corrosion and skin irritation can occur.

UNDERSTANDING SANITISER

Sanitiser controls and prevents bacteria and algae growth. Maintain the proper level of chlorine or bromine sanitiser to keep water safe and sanitary.

CHLORINE Sanitiser

Chlorine sanitiser is the most commonly recognised sanitiser. The effectiveness of chlorine sanitiser is dependent on the pH level of the water. To achieve the most effective and economical benefit of chlorine sanitiser, a pH range of 7.2-7.6 is necessary. Allow time (approx. ½ an hour) for chlorine fumes to dissipate before recovering spa.

BROMINE Sanitiser

Bromine sanitiser is less likely than chlorine sanitiser to cause strong odours, eye burns and skin irritation. When bromine sanitiser combines with organic material, such as oil, hair, dry skin and other contaminates in the water, it remains an effective sanitiser and is far less pH-dependant.

IMPORTANT: Do not mix different types of sanitiser. Completely drain the spa and refill with clean water when switching between types of sanitiser.

CD OZONE UNIT

A CD ozone unit is one of the best products available to help maintain proper water chemistry and sanitation. The ozone (O3) that is produced is a fast-acting and powerful sanitiser that destroys all types of bacteria. Ozone creates no residuals or by-products when oxidising or eliminating bacteria. Because ozone is only effective for a few minutes, the supply must be constantly replenished by an CD ozone unit.

CD ozone units move air across a corona discharge chip (CD) to create ozone. The ozone injection system then injects the ozone into the water. The ozone injection system is made up of tubing and one ozone jet which cannot be turned off (typically located in foot well). The system includes a one-way check valve and a 'Hartford Loop' which prevent water from reaching the CD ozone unit and are required for safety. If replacing a CD ozone unit both of these items must be in place.

The ozone injection system is installed in each spa during fabrication.

The CD ozone unit does not eliminate the need for chemicals or sanitiser, but reduces the amount needed to maintain the proper water balance.

The CD ozone unit operates only during the filtration and heating cycles.

SHOCKING THE WATER

Shocking (or oxidation) is the process of removing organic materials such as body oils, cosmetics and lotions from the water. Shock oxidises these materials that may cause foul odours, eye or skin irritation and cloudy water.

IMPORTANT: Use only Shock that is recommended for spas and hot tubs.

OTHER SPA CHEMICALS

Contact your retailer for advice on any spa chemical or additive, some examples are:

- Natural products
- Aroma pouches or scents
- Water clarifiers
- Spa cover wipes
- Acrylic surface protector (aids in cleaning the acrylic surface, especially around the water line)
- Mineral purifier
- Filter cleaning solution (deep cleans the filter)
- Foam down or surfactant (reduces foaming and bubbles)