

MAINTAINING YOUR SPA WATER

Tap water that is safe to drink is not always safe for a spa. Normal tap water is usually filled with minerals and micro-contaminants that are not visible to the naked eye. Properly testing and treating your spa water is essential for the health of the spa as well as the people using it. Proper chemical maintenance will help control and prevent the following:

- Bacteria, algae, and fungi, which can spread disease and infection to humans
- Staining and scale build-up on the spa shell, equipment, and piping
- Clogged filters

CAUTION: Important Instructions. Always:

- Follow chemical manufacturers' instructions
- Use an accurate test kit to perform all chemical tests
- Never mix chemicals
- Add chemicals directly to the spa, evenly spreading the chemicals over the surface of the water or use an appropriate feeding or metering device
- Run the filter pump on high speed for at least 15 minutes after applying chemicals
- Check chemical levels often
- Note that names of spa chemicals will vary from one manufacturer to another
- Contact your authorized Spa dealer with questions

Overview of Water Chemistry

Water Quality Maintenance

Maintaining the quality of the spa water within specified limits will enhance your enjoyment of the spa and prolong the life of its equipment. It is a fairly simple task, but it requires regular maintaining because the water chemistry involved is a balance of several factors. There is no simple formula and there is no avoiding it. A careless attitude regarding water maintenance will result in poor and potentially unhealthy conditions for bathing and possible damage to your spa. For specific guidance on maintaining water quality, consult your authorized Spa dealer who can recommend appropriate chemical products for sanitizing and maintaining your spa.

Sanitisation

Sanitizers kill bacteria and viruses and keep the water clean. A low sanitizer level will allow bacteria and viruses to grow quickly in the spa water. To raise the sanitizer level, simply add an approved sanitizer. A high sanitizer level can cause discomfort to eyes, lungs and skin. To lower the sanitizer level, simply wait – the sanitizer level will naturally drop over time. Effective and safe sanitizers include Granular Chlorine (Dichlor-type only) and Granular Bromine.

NOTE: Increased use of the spa (or in the number of users of the spa) will result in the need to increase the amount of sanitizer required to maintain the recommended sanitizer level.

NOTE: Ozone purification is recommended only as a supplement to the above sanitizers. Ozone Purifiers greatly enhance the quality of the spa water when used in conjunction with an industry standard spa chemical maintenance program.

CAUTION: Never use ozone as a single-source sanitizer, water clarifier, stain & scale inhibitor or foam inhibitor.

WARNING: Trichlor Chlorine tablets should never be used in a portable spa. Dissolve rate, potency and the extreme low pH of this chemical can cause severe damage to the spa surface and components. Use of Trichlor Chlorine tablets will void the warranty.

WARNING: Bromine and Dichlor tablets are also not recommended as an acceptable sanitizer in a Spa or Tadpole Spa unless in an appropriate feeding or metering device. Inconsistency in its application and excessive Bromine or Chlorine in the spa can cause surface damage and component failure. Use of either of these sanitizer tablets in any automatic "floating-type" tablet feeder will require more frequent monitoring and testing. Misuse of Bromine or Dichlor tablets will void the warranty.

WARNING: Products containing Baguanide (Baqua) are also not recommended for use in your spa. These products are known to deteriorate light lenses, pump seals and other spa components. Misuse of Baquanide products will void the warranty.

Super Sanitation

Normal sanitation does not eliminate Chloramines (trapped Chlorine), Bromamines (trapped Bromine), along with other non-filterable wastes, such as perspiration, oils, hair sprays, etc. that can build up in the water. These substances make the water unattractive in appearance and odor, and can interfere with sanitizer effectiveness. Super Sanitizing (or "shocking" or "Super Chlorinating") the spa water is achieved when the sanitizer level reaches or exceeds 10.0 PPM with granular Chlorine (Dichlor), or 22.0 PPM with granular Bromine (Bromine concentrate). Super Sanitation can also be achieved with a non-Chlorine shock (Potassium Peroxymonosulfate or equivalent). Contact your authorized Spa dealer for assistance.

When Super Sanitizing your spa water, and providing that you are available to attend to the safety of any children present, you should allow the high level of sanitizer to off-gas by opening the spa cover at least half way for a minimum of 20 minutes. Failure to allow high concentrations of sanitizer to off-gas with the spa cover open will cause the underneath side of the cover to discolor and degrade. Such damage to the spa cover is not covered under the terms of your spa's warranty.

WARNING: Never leave an open spa unattended, especially if there are children present.

IMPORTANT: Always allow the chlorine level to fall below 5.0 PPM (11.0 with Bromine) before entering the spa water.

pH Control

Proper pH balance is extremely important in providing water that is comfortable to the user, and preventing damage to the spa and equipment. The measure of acidity and basicity in the water is called pH. The pH scale ranges from 0-14. Levels of pH less than 7.0 are acidic while pH levels greater than 7.0 are basic. The proper pH range for a spa is 7.4-7.6.

High pH levels (greater than 7.6) can cause scale build-up on the spa and its equipment, cloudy water, a prematurely dirty filter, and less effective sanitation. To correct high pH levels, add a pH decriaser.

Low pH levels (less than 7.4): can cause discomfort to the spa users, rapid dissipation of sanitizer, and corrosion to the spa equipment. To increase pH levels, add a pH increaser.

NOTE: Never use Muriatic or Hydrochloric acid to adjust pH as it can damage the spa shell and surrounding components.

Total Alkalinity (TA)

TA is the quantitative measurement of alkaline components (carbonates and bicarbonates) present in water, which if properly adjusted, act as a buffer against rapid pH changes. Proper total alkalinity levels are important to ensure optimal chemical balance in spas. Low TA can cause the pH to be unstable causing the water to be corrosive or scale forming to the spa and its equipment. To correct low TA, add a Total Alkalinity Increaser. High TA can cause scale build-up, cloudy water, as well as other pH problems. If the spa water has high TA, contact your authorized Spa dealer for assistance.

Calcium Hardness (CH)

CH is the measure of dissolved calcium in the water. Low CH (soft water) can stain the spa surface as well as cause corrosion to the spa and its equipment. To correct low CH, add a CH Increaser. High CH (hard water) can cause cloudy water as well as rough scale build-up on the spa surface and equipment. If the spa water has high CH, it is preferable to either dilute the water's hardness by blending the water with water from a water softener, or by the addition of a special water softening chemical (contact your authorized Spa dealer). **IMPORTANT:** Never fill the entire spa with soft water unless an appropriate mineral supplement is immediately added (contact your authorized Spa dealer).

Stain and Scale Control

Stain and scale problems are common in hot water environments. To help prevent and control staining and scaling, add a Stain and Scale Inhibitor.

Foam Control

Spa water that is polluted with body oils and lotions, combined with high water temperatures, can cause excessive surface foaming. For a temporary fix, add a Foam Remover. The best way to control foam is to Super Sanitize the water; this will destroy the soap agents that normal levels of sanitizer will not.

Cloudy Water Prevention and Control

There are two basic reasons that spa water becomes cloudy. Non-filterable liquid waste (e.g. perspiration) have contaminated the water. To remove these substances, Super Sanitize the water. Or, non-filterable micro-particulate waste (e.g. dust) has contaminated the water. To remove these substances use a Water Clarifier.

Starting the Spa with New Water

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IMPORTANT: Never fill the spa with soft water unless an appropriate mineral supplement is immediately added. If your water is extremely hard, it is preferable to either dilute the water's hardness by blending the water with water from a water softener, or by the addition of a special water softening chemical. For more information, contact your authorized Spa dealer.

Step 1: Add the prescribed dose of Stain and Scale Inhibitor while filling the spa. This will provide the initial protection against staining and scaling. Once the spa is filled, add the prescribed dose of Water Clarifier. This will clear the water of any micro-particulates that may be in the new water.

Step 2: If possible, have your authorized Spa dealer test the calcium hardness (CH) of your spa water. Adjust the CH to 150-200 parts per million (PPM).

Step 3: Test and adjust the Total Alkalinity (TA). TA should measure 125 to 150 PPM.

Step 4: Test and adjust the pH. Water pH should measure 7.4 to 7.6.

Step 5: After the spa water has circulated for 1 hour, Super Sanitize the water by adding 2 teaspoons (10cc) of Granular Chlorine (Dichlor-type only) or 4 teaspoons (20cc) of Granular Bromine per 200 gallons (909.2l) of spa water. (For complete details, refer to the [Super Sanitation section](#).) After several hours, check sanitizer level and adjust, if necessary, to the following:

	Without Ozone	With Ozone
Chlorine Level	3.0-5.0 PPM*	2.0-4.0 PPM
Bromine Level	6.7-11.0 PPM	5.7-10.0 PPM

*PPM=Parts per million

IMPORTANT: Do not enter the spa water until the sanitizer range is within the above stated boundaries. NOTE: If the sanitizer level is too high, simply wait as the sanitizer level will naturally drop over time.

Step 6: Startup water chemistry is now complete. However, it may take several days for the filter to completely clear the water.

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Sanitizer and pH Levels

It is important to test and adjust the sanitizer and pH levels of your spa on a frequent basis. These tests should be

performed prior to each use of the spa. At a minimum, it is recommended that you test the spa water 2-3 times a week, regardless of use.

Always test the pH level before you test the sanitizer level. If the pH level is not within the correct range (7.4-7.6), make the necessary adjustments.

With each sanitizer test, use either granular Chlorine (Dichlor-type only) or granular Bromine to maintain the following levels:

	Without Ozone	With Ozone
Chlorine Level	3.0-5.0 PPM*	2.0-4.0 PPM
Bromine Level	6.7-11.0 PPM	5.7-10.0 PPM

IMPORTANT: To maintain the level of sanitizer with Bromine or Chlorine (Dichlor-type only) tablets, contact your authorized Spa dealer for assistance.

Super Sanitation

Super Sanitize the water once a week by adding one of the following:

- 2 teaspoons (10cc) of granular Chlorine per 200 gallons (909.2l) of water
- 4 teaspoons (20cc) of granular Bromine per 200 gallons (909.2l) of water

NOTE: To Super Sanitize your spa water using a non-chlorine shock (Potassium Peroxymonosulfate or equivalent) refer to the chemical manufacturer's instructions or see your authorized Spa dealer for assistance.

NOTE: Super sanitation may be required more than once per week for heavy usage.

Stain and Scale Control

Use a Stain and Scale Inhibitor per the manufacturer's instructions. Add the chemical 3-4 days after Super Sanitation.

Foam Control

Use a Foam Remover per the manufacturer's instructions as needed.

Cloudy Water Prevention and Control

Use a Water Clarifier per the manufacturer's instructions. Add the chemical 3-4 days after Super Sanitation.

Water Chemistry Troubleshooting

Prior to each spa use, check the water. If the water appears cloudy or off-color, has significant surface foam, or excessively smells of chlorine or bromine, than water needs to be treated or drained. Using the spa in these conditions could result in a skin rash or irritation or possibly an infection or other serious health risk. For assistance in handling spa water chemistry, contact your authorized Spa dealer or another service center capable of performing a computerized water analysis.

Changing Spa Water

As you use your spa, soap and detergent residues from your skin and bathing suits, along with other substances from maintaining the spa's water chemistry will accumulate in the spa water and make maintaining the water more difficult. Rinsing your bathing suits, and showering without soap, prior to entering your spa will increase the life of your spa water. Depending upon usage, the spa water will need to be changed every 1-4 months or when the water chemical levels become difficult to manage. When changing spa water, if your spa is fitted with JetPaks™, remove all JetPaks™. Clean the JetPod™ areas with a spa surface cleaner. See Spa Shell Care. Clean the plumbing areas on the back of the JetPaks with a spa surface cleaner and a long, soft bristle brush.

IMPORTANT: Drain your spa to an area that can handle a large quantity of water. If draining water onto vegetation, make sure that the sanitizer level (Chlorine or Bromine level) of the water is less than 0.5 PPM.

WARNING: Avoid drainage that can lead into basement window wells.

To Drain Your Spa:

Step 1: Turn-off main electrical breaker to spa.

Step 2: Locate drain spout below equipment compartment door.



Step 3: Pull the drain spout out with a slight clockwise turn.

Note: Drain spout is fully extended at approximately 2 inches. Use pliers if needed.



Step 4: Remove drain cap.

Note: The drain spout will not drain when fully extended.



Step 5: Attach a standard garden hose. Push the drain spout in halfway to actuate the drain.



Note: The Spa will drain about 5 gallons per minute. Ensure that the drainage is in an area safely away from window wells or basement entries.

Step 6: Once the spa is fully drained, pull the drain spout out all the way, remove hose, replace the drain cap and push drain in all the way.

To Refill Your Spa:

WARNING: When refilling the spa, always Super Sanitize the new water by adhering to the instructions in the Water Chemistry section.

Step 1: To avoid air pockets in the pump(s), refill the spa with water by placing the hose into the filter compartment through the Weir door. Fill to the water level indication on the faceplate of the filter assembly.

Step 2: Restore electrical power supply.

Step 3: Press any button to reset the control system.

Step 4: Reattach the equipment compartment door.

Step 5: Following instructions in Starting the Spa with New Water.

IMPORTANT: Never fill the spa with soft water unless an appropriate mineral supplement is immediately added. If your water is extremely hard, it is preferable to either dilute the water's hardness by blending the water with water from a water softener, or by the addition of a special water softening chemical. For more information, see your authorized Spa dealer.

NOTE: The higher the water level in the spa, the fewer spa users it will be able to handle.