

# Enzymes in Spas and Hot Tubs

## 21st Century Hot Tub Water Maintenance

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When it comes to maintaining hot tub water, chlorine and bromine-based programs are 1970's technology that were originally designed for cooler temperature swimming pools. Today, all-natural enzyme products are considered the latest technology to provide clean, clear, luxurious and environmentally friendly water in a hot tub.

Two classifications of enzymes in pool and spa products are blended enzyme products and broad-spectrum enzyme products. Both types of enzyme products are available in the market and both lead to productive outcomes.

### Blended enzymes

Blended enzymes are designed to decrease quantities of fats and oils in cooler temperature swimming pools. As a result, they save on the time and effort required to maintain a clean and oil-free waterline in the pool.

### Broad-spectrum enzymes

Manufacturing Broad Spectrum enzymes are designed to be used in higher water temperatures such as spas and hot tubs as they are more powerful and useful in cleaning hot tub water.

### How Do Enzymes work in Hot Tubs?

When strictly using chlorine or Bromine in a hot tub, the water must continually maintain a suggested retention level of from 3-5 parts per million (ppm). This is so the chemicals can continually attack the substrates that are body oils, sunscreen, cosmetics, hair products and other body waste and to provide protection against bacteria. It also requires a higher ppm because chlorine and bromine products break-down much faster in warm to hot water. That's why a swimming pool, that operates with cooler water temperatures (generally under 85 degrees F (29 C), only requires a 1-3 ppm sanitizer level as opposed to the 3-5 ppm suggested in hot tubs.

By using a natural enzyme water conditioner, all but the complete destruction of bacteria is continually accomplished. To destroy the bacteria, it now only requires a small amount of sanitizer, before you enter the hot tub, to eliminate the bacteria and allow it to off-gas into the atmosphere leaving clean, clear, and sanitized water.

In a hot tub that has heavy bather use, you may find that the water becomes slightly cloudy. If this occurs, the addition of a small amount of non-chlorine oxidizer, between uses, will alleviate the problem.

### Chlorine and Bromine are the most effective Sanitizers, BUT.....

Let us be clear! When it comes to killing bacteria and burning out waste, chlorine and bromine are the most effective sanitizers on today's market and a minimal amount is required in any enzyme program. However, chlorine and bromine come with drawbacks when you use them as the basis of your hot water maintenance system.

Chlorine and bromine products work most effectively in a balanced water environment within a 7.2 – 7.6 pH range. Constantly adding chlorine or bromine affects the pH balance as do other factors like body sweat, lotions, skin cells, minerals etc. These systems require constant testing and adjustment and can lead to excess use of sanitizer, with resultant dermal and respiratory problems. Constant water balancing can be a challenge for many people. **Enzymes only require that you balance your water initially, paying close attention to the alkalinity, after which the enzymes will automatically lock-in the pH that is best suited for them. Depending on the enzyme product you purchase, the enzymes will maintain your hot water for a period of up to three months without close monitoring. This is especially beneficial to absentee hot tub owners.**

The industry recommends that chlorine and Bromine products need to maintain a level of 3 - 5 ppm to do their job in hot water. The higher temperatures in hot tubs will break-down chlorine and bromine faster and increase levels of bacteria which will eat-up the sanitizer at a faster rate than in cooler temperatures. **Enzymes, on the other hand, continually break down most contaminants and work more efficiently in hotter temperatures. They will not break down in temperatures under 180 degrees Fahrenheit.**

While sitting in these higher levels of chlorine in the hot water, the user may experience several negatives such as dry or itchy skin or even more severe dermal sensitivity. They may also suffer lung or sensory discomfort due to chlorine vapours along with offensive chlorine odour remaining on the body until showering. **With an enzyme product, you can treat the water with a small amount of sanitizer 20 minutes before entering the tub. This is enough time to kill any bacteria build-up and then off-gas so as to avoid soaking in water that has been chemically treated to excess. In addition, enzymes provide a luxurious feel to the skin which enhances the total hot tub soaking experience.**

Chlorine and Bromine will not attack and destroy the biofilm that adheres to the plumbing in your spa. This biofilm is a build-up of oils and organics that are not destroyed by chlorine or bromine and this biofilm feeds bacteria and is a great place for bacteria to hide. **Enzymes constantly clean that biofilm hiding in the plumbing, and also reduce the frequency of tub and plumbing purge requirements.**

Chlorine and bromine are oxidizers that can adversely affect pipe seals and the systems equipment. Enzymes are a gentle product that will not harm seals or equipment **which provides a longer life to the hot tub's plumbing and equipment.**

We are all looking to be environmentally conscious these days and chlorine and bromine are not environmentally friendly products. Many municipalities have laws about draining these products into the environment. When it comes time to change your hot tub water, which is generally recommended every three months, we can be environmentally conscious since enzyme products are all-natural in their make-up, therefore friendly to the environment.

One last thing. Several chemical brands recognize the value of enzymes in a hot water maintenance program by recommending that an enzyme product be added on a regular basis as a supplement to maintain clean, clear, fresh water when the tub is not in use. Enzymes are compatible with chlorine, bromine, ozone and chlorine salt generators.

Enzymes are the cutting-edge technology in hot water maintenance and one would ask, "Why not start with enzymes in your hot tub or swim spa and use chlorine or bromine as a supplement to provide sanitized water without the drawbacks?"

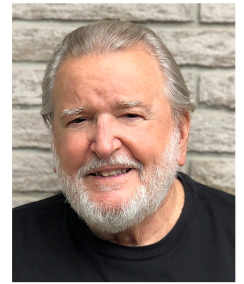
Thousands of hot tub owners today agree and enjoy the benefits of less maintenance, a pleasurable hot tub soaking experience and the fact that enzymes are environmentally friendly.

### **Enzymes are the 21st Century technology of hot water maintenance.**

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#### **About the writer:**

*Rich Hubbard is a 50 year veteran of the pool and spa industry and started as the communications manager for Jacuzzi Canada Ltd. In 1971, he was on the Jacuzzi team that introduced spas to the Canadian market and helped make Jacuzzi an iconic and interchangeable name for spas and hot tubs.*



*After a seven year service with another pool and spa equipment manufacturer, Rich was the founding publisher of Pool & Spa Marketing magazine, an influential, international trade publication, that he operated for over 30 years. He built the publication's reputation through industry statistics, strong technical articles and introducing new products to the industry. During the years of his publishing business, he was also a founding member of the National pool and hot tub association, a past-president, several times it's executive director and operated the Canadian pool and spa trade show for a number of years. His international affiliations put him in contact with many facets of the spa industry and exposed him to a multitude of products and technical knowledge. Rich is still active in the industry as a consultant with several clients.*