IMPACT OF SALT WATER CHLORINE GENERATORS ON VINYL POOL LINERS

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The use of salt water chlorine generators to supply free chlorine to pool water for sanitization has increased significantly in recent years. Although these units provide more consistent dosing of chlorine to pool water than manual dosing there are several factors to consider so that their use does not lead to abuse and cause exposure of the liner material to excessive levels of free chlorine.

Many homeowners who have been sold salt water chlorine generators do not realize that their system is indeed a chlorine generator and not simply the use of salt to sanitize their pool. As such many are sold on the idea of "set it and forget it" as an easy and time saving method to treat the pool water. The first thing to remember with the use of these systems is that the requirement for diligence in testing and balancing pool water to maintain parameters within the recommended ranges is as important as it is with manual chemical additions.

To maintain a vinyl pool liner and maximize its service life CGT recommends controlling the water chemistry parameters within the following ranges:

1) Total Alkalinity: 80 – 120 ppm
2) pH: 7.2 – 7.6
3) Calcium Hardness: 200 - 300 ppm
4) Free Chlorine: 1 – 3 ppm
5) Cyanuric Acid Stabilizer: 25 – 50 ppm

Exposure of the vinyl liner material to the water chemistry parameters outside of the recommended ranges can result in a variety of negative effects. Some of these include liner wrinkling, liner color loss/staining and stiffening of the liner material which can lead to premature tearing and failure of the liner to hold water. All of these result in a shortened service life for the liner.

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The best way to think of a salt water chlorine generator is a constant output, or constant dosing chlorinator. The demand for free chlorine in the pool water is dependent on factors such as bather load, exposure to sunshine and the amount of organics such as leaves and other contaminants that enter the pool. The chlorine demand therefore fluctuates depending on the amount of variation in these parameters.

When the salt water chlorine generator is adjusted and set to an appropriate level based on “typical” user demand it supplies a relatively constant supply of free chlorine to the pool water. This means that the free chlorine level may remain at a reasonable level as long as the demand for free chlorine remains relatively constant. However this is rarely the case because the factors impacting demand tend to fluctuate constantly. Free chlorine concentration can climb above the recommended range when demand is low such as during extended periods when the pool is not in use, or be too low when there is greater than normal use or significant introduction of organics into the pool.

Water circulation is another important factor within the pool. Chlorine will settle if there is insufficient circulation causing a higher concentration closer to the pool floor. Sometimes high concentrations of chlorinated water in the piping will flow back into the pool after circulation ceases leading to localized regions of high concentration close to the liner. Any time there is exposure of the vinyl liner material to excessive concentrations of free chlorine for extended periods of time the pigmentation used in the inks and base film are at risk of being discolored or “bleached out”. This color change is irreversible and causes an unsightly appearance. The excessive free chlorine levels also lead to wrinkling and premature stiffening of the liner material which can cause leaks to occur.

In summary, whether using manual additions of chlorine to sanitize and disinfect your pool water, or a salt water chlorine generator the most important factor in maintaining your pool liner is regular pool water testing and adjustment of the key water parameters to maintain them within the recommended ranges.

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