

CWS White Paper

Sphagnum Moss and Salt Chlorination The Effects of PoolMoss® Pro on Salt Chlorination Systems

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Introduction

Salt generation of hypochlorous acid for pool sanitation is a popular method in both home pools and some commercial pools. It really should be called hypochlorous acid generator and not a salt generator since the process makes the same active molecule that can be added to the pool with many different liquid and solid chlorine products. The salt generator passes a current of electricity across metal plates that create an electrolysis reaction when sodium chloride (table salt) is present in the pool water at the required concentration. The electrical current causes local chemical reactions inside the generator that cause formation of hypochlorous acid that is delivered to the pool water. Like most things in life, this useful chemical reaction is accompanied by undesirable side effects such as scale formation on the metal plates within the generator and formation of sodium hydroxide (a strong base) that causes pH within the pool to rise.

Depending on the chemical composition of the local water, a lot of scale can accumulate between the plates. This usually starts at the inflow end of the salt generator and progresses across the plates. Once scale has formed, the effective surface area of the metal plate electrodes is decreased. Scale formation is also affected by the amount of electrical current needed to produce enough hypochlorous acid to achieve the desired concentration in the pool. In pool terms this is the Free Available Chlorine (FAC) that you measure with pool water test strips. Turning up the power on the generator, delivers more current to the plates that in turn makes more hypochlorous acid, more scale and more sodium hydroxide. The build up of scale takes some time, so there is usually a gradual increase, sometimes over a couple of years, of scale that inhibits the efficiency of the electrolytic process.

There are two ways to deal with the scaling process. Commercial pool generators have an electrode stack that can be removed for cleaning. One local commercial pool with a hypochlorous acid generator has to remove the stack and soak it in acid every other week to remove the scale so enough hypochlorous acid can be made to maintain FAC levels. This process not only takes time, but recurrent acid treatment gradually removes the metal on the surface of the electrodes. When enough of the metal is gone, they need to be replaced. A costly proposition.

Residential users of hypochlorous acid generators have a more difficult time because their units usually are hard plumbed into the pool circuit and the metal plates cannot be removed. When they become severely scaled, the whole unit needs to be removed and either replaced or cleaned with acid.

pH changes in the pool water from the formation of sodium hydroxide require addition of acid to keep the pool water from becoming too alkaline. Commercial generators often have acid feeders to keep the pH in check. Residential pools require frequent checking of the pH and appropriate addition of acid or pH down.

Conclusion

Hypochlorous acid “salt” generators and PoolNaturally® were made for each other. As one satisfied customer in Minnesota reported, “I open my pool, turn on the generator, fill the contact chamber with PoolNaturally® and enjoy the pool all summer long”. “Last year, I didn’t have to add anything to the pool except some water”.

A commercial pool operator using PoolNaturally® Plus along with an offline hypochlorous acid generation system demonstrated the beneficial effects by discontinuing PoolNaturally® Plus after using it for two years. He reported that the electrolysis plates on the hypochlorous acid generator immediately started to accumulate scale resulting in frequent maintenance and acid baths to maintain function. He then restarted PoolNaturally® Plus and the system returned to its previous scale free status. He is adding PoolNaturally® Plus to all his pools that have hypochlorous acid generators to “protect his equipment and decrease maintenance.

For technical support please contact **Clear Water Supplies International Limited** or visit www.CWSNaturally.co.uk

