



Advanced Start-Up & Maintenance for Salt Water Pools

## How does the ECG device produce chlorine from salt water?

The technology behind the ECG unit is actually over 100 years old and is essentially the same technology used to commercially produce chlorine. In your pool of course the ECG operates on a much smaller scale and is able to use the same salt over and over again because of this scale of operation. Inside the ECG are a series of metallic plates made of titanium and coated with a precious metal called ruthenium that serves to catalyze the chemical process to make chlorine. When a low voltage, DC current (very safe for swimmers!) is passed through these coated plates, it causes one side of the plates to have a positive charge and the other side of the plate to have a negative charge. These charges are strong enough to actually allow the sodium and chloride molecules of the salt and the water molecules around them to recombine to form chlorine. The chlorine is actually produced on the negatively charged plates and another chemical called sodium hydroxide is simultaneously produced on the positively charged plates. The freshly made chlorine then combines with a portion of the sodium hydroxide produced to yield the chemical sodium hypochlorite, the same chemical you purchase when you buy liquid pool chlorine at a store.

This sodium hypochlorite solution then gets carried out into the pool where it can very effectively control microorganisms as well as oxidize and destroy unwanted swimmer wastes from sweat, urine and body or suntan oils. This unique property of chlorine to both sanitize and oxidize keeps your pool sparkling and protected for your family and friends. Once the chlorine has done its work, it reverts back to salt (sodium and chloride ions dissolved in the water) ready to be converted back to chlorine again when it next passes through the ECG.

This is a well established and very efficient technology for producing both the sanitizer and the oxidizer chemical needed to maintain your family's pool. Also, since the salt is not used up in this process and is only lost through splash out, pool leaks or backwash, salt does not need to be added nearly as frequently as do traditional chemical sanitizers and oxidizers which must be continually replaced. One effect of this method of production of chlorine is that the pH level in the pool will rise as chlorine is produced. This is relatively simple to take care of because it always raises the pH; you will only need one product, muriatic acid to reduce the pH back down again. We will cover the maintenance in a little more detail later in this book.

As mentioned above, the ECG device contains some important and valuable components. In particular, the titanium plates coated with a layer of precious ruthenium metal are necessary for the ECG to operate and produce chlorine. The ruthenium coating has a usable life expectancy that can be significantly reduced by failure to control scale and certain contaminants that cause the ECG to run more frequently than normal. The premature replacement of these plates is a costly expense that pool owners should take all precautions to

prevent. Pristiva® was specifically designed and formulated to help prevent premature failure of ECG cells and protect the pool owner's investment.

