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Chlorine Generator Life Span

The life span of a pool and spa Chlorine Generator is determined by many factors, but perhaps the most important are:

- Current density, the current per square inch between the plates
- If self cleaning, the period of time between reversing polarity
- Length of chlorine production time

Current density

The current density is one thing that you, the owner of the chlorine generator can have little effect on. The only things that you can do are to set the water temperature and the salt level. The other things that effect the current density are in the design of the cell and the power supply.

The titanium plates typically have a life span of 10,000 hours of chlorine production with the current density at 0.2 amps per square inch. At 0.4 amps per square inch, the life span would be cut in half or even less, but the amount of chlorine produced would also go up.

The factors that effect the current density include

- Spacing between the plates
- Voltage applied to the plates
- Conductivity of the water

Spacing between the plates: As the plates get closer together the current will go up for the same voltage. The spacing between plates and the voltage are part of the design of the chlorine generator and the manufacturer will typically give a recommended salt concentration which would provide the proper current density for the spacing and voltage of the chlorinator. The proper current density should be one that will exceed the warranty period of the chlorinator. If there is more salt then the current would be higher, if there was less salt the current would be lower.

Voltage applied to the plates: Some chlorine generators have the ability to change the voltage to keep the current density constant. These will be able to

work with greater salt concentration ranges and water temperatures.

Conductivity of the water: The primary factors are salt concentration and water temperature. As the temperature goes up the current density also goes up. A pool chlorine generator would probably be designed for the proper current density at 80 degrees Fahrenheit. To use a pool chlorine generator in a spa, where the water is 104 degrees Fahrenheit could be a very big problem. At the higher temperature the current density would go up quite a bit and it would also make a lot more chlorine. You would probably not be able to adjust it low enough to make the right amount of chlorine. Over-chlorination can lead to corrosion of the spa heater and other parts. You can of course in this example keep the salt low or make sure that your chlorinator is the type that adjusts the voltage.

Reversing Polarity

If you have a reversing polarity chlorine generator, then the coating on the titanium plates probably has a blend with Ruthenium Oxide. Every time the plate voltage reverses that can decrease the life of the plates but when done properly the cell will still meet the life expectancy of the chlorine generator. This is a function of the chlorine generator design.

With the non-reversing chlorine generator the plates will need to be cleaned more often. The manual cleaning probably also effects the life of the plates.

Length of Chlorine Production

This is the one factor that the owner of the chlorine generator can have a big impact on. The longer the chlorinator is on, that is getting closer to the life of the cell. You will get a longer life from the cell if you are able to have it on less. This of course leads to the chlorine demand of the water and the chlorine level you are trying to achieve. Some of the factors that can help to reduce the time per day the chlorine generator needs to be on include:

Table of things you can do to lower chlorine demand

Action	Effect	Pool / Spa
Stabilizer or conditioner	Protect the chlorine from being destroyed by the sun's ultra-violet rays	Pool
Cover	Protect the chlorine from being destroyed by the sun's ultra-violet rays, less stuff landing in pool	Both

Keep Clean	Keeping leaves and organic material out of the pool lowers the chlorine demand	Pool
Phosphate Remover	Algae lives on phosphates, remove the phosphates and remove the algae food.	Both
Clairifier	Help to reduce organic material and have it caught up in the filter. Make sure to clean the filter after.	Both
Temperature	Lower the temperature. Higher temperatures increase the demand	Both
Usage	Less usage lowers the demand, defeats the purpose of having a pool or spa.	Both
Chlorine Free Shock	Helps to reduce the organic matter	Both
Chlorine Shock	Reduces the organic matter and helps to leave a residual. This can be a big help for a chlorine generator is the chlorine dropped to 0 after usage.	Both
Ozone	Helps to reduce the organic matter	Both
Alternative sanitizers	Usually an alternative sanitizer requires a low amount of chlorine, they lower the needed chlorine level.	Both
Chemical Controller	They are expensive but they can control the chlorine so you don't make too much with a chlorinator	Both
Spa Jets	Using the jets decreases the chlorine faster than not using them.	Spa
PH	Keep the pH at 7.2 to 7.6 to help maximize the effectiveness of the chlorine.	Both

Conclusion

Always follow the manufacturers recommended salt concentration for your chlorine generator. There are quite a few things you can do to help reduce the chlorine demand on your pool or spa, pick the ones that you can easily do and hopefully you will be able to lower the output level on your chlorine generator,

make sure to measure the free chlorine every couple days.