

**INDIANA STATE DEPARTMENT of HEALTH
ENVIRONMENTAL PUBLIC HEALTH DIVISION**

**SALT CHLORINE GENERATORS for PUBLIC and SEMI-PUBLIC SWIMMING
POOLS**

Listed below are some frequently asked questions that have been directed to the Indiana State Department of Health about salt chlorine generation for public and semi-public swimming pools. Indiana State Department of Health Swimming Pool Rule 410 IAC 6-2.1 (Rule for swimming pool operation and maintenance) requires that pools be continuously and automatically disinfected with a chemical that imparts an easily measured free residual.

- **What is salt chlorine generation for swimming pools?**

Salt chlorine generation is a system for swimming pools that makes chlorine from salt using a salt chlorinator.

- **What is a salt chlorinator and how does it work?**

A salt chlorinator, also known as an electrolytic chlorine chlorinator (ECG), is an electrical device that makes chlorine from salt by using an electrical charge. The salt is either added into the pool water (in line) or added from a brine tank (on site). It works by passing the water that contains dissolved salt through reaction cell/cells in the ECG. The ECG reaction cell has an electrical charge that takes a chloride ion from the salt and combines it with a part of the water molecule and makes chlorine.

The in line generation process involves adding a low concentration of salt to the pool water. This pool water passes through an electrolytic cell/cells placed in the water circulation system. The cells contain rare metals and are powered by a DC power supply. Chlorine gas and sodium hydroxide are produced and dissolved into the water and hydrogen is discharged as a byproduct into the atmosphere. The chlorine produced will revert back to salt after it performs as the disinfectant in the pool water. Thus, the salt can be used over and over. Additional salt will have to be added to replace salt lost to filter backwash, rain water dilution, splashout and water that adheres to the bather.

The other method, the brine method of chlorine generation, acts like an on site small chlorine plant. It uses a box with 2 chambers separated by a porous membrane. One chamber has the positive electrode (anode) to which salt and distilled water is added. The other chamber has the negative electrode (cathode). When power is applied, chlorine gas is formed at the anode and sodium hydroxide at the cathode. The chlorine gas is injected into the water using a venturi (creates a vacuum).

- **Does salt disinfect the pool water?**

No, salt is not a disinfectant. The chlorine that is produced from the salt is the disinfectant. Chlorine is acceptable as a disinfectant for use in public and semi-public swimming pools as required in Section 30(b), Swimming Pool Rule 410 IAC 6-2.1.

- **Will I still have to buy chlorine?**

No, as long as the salt generator is sized properly and operating properly as to provide and maintain the required free chlorine (disinfectant) levels as listed in Section 30(b), Swimming Pool Rule 410 IAC 6-2.1.

Yes, if levels of free residual are not the maintained as listed in the Swimming Pool Rule.

What kind of salt can be used?

The salt must meet the manufacturer's requirements for the electrolytic chlorine generator that is used. Other salts may contain contaminants, metals, or additives that may cause staining, scales or water imbalance.

- **Any special concerns with salt chlorine generation?**

1. Since electrical current is used, ensure proper grounding and bonding to eliminate stray currents which could lead to damage to ladders, railings (including stainless steel) and heaters.
2. Keep cells/chambers clean to prevent scaling.
3. Be sure to vent the hydrogen gas (a byproduct of the process) to the atmosphere to prevent explosion or interference with probe measurements.
4. Routine wash down of the deck to prevent salt build up left by water evaporation.
5. As with all pools; proper water balance must be maintained: pH 7.2-7.8, 80ppm-120ppm alkalinity, stabilizer (cyanuric acid) not to exceed 60ppm, combined chlorine not to exceed 0.5ppm.

- **Would plans have to be submitted to add this system to a pool?**

Yes, this would be considered as an alteration as addressed in 675 IAC 20-2-1, Indiana Swimming Pool Code (the construction code for swimming pools). These plans must be submitted to the Indiana Department of Homeland Security, Division of Fire and Building Safety, Plan Review Branch prior to construction.