



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE  
SWIMMING POOL PROGRAM**

**ELECTROLYTIC CHLORINE GENERATORS FOR PUBLIC SWIMMING POOLS  
SALT CHLORINATION - FREQUENTLY ASKED QUESTIONS**

This document is intended to answer some frequently asked questions that have been directed to the Michigan Department of Environmental Quality (MDEQ) about salt chlorination at public swimming pools. Rule 57 of the Public Swimming Pool rules requires an approved chemical feeder for all public pools. Salt chlorinators generally meet these requirements.

- We have heard about salt chlorinators for pools and that you don't need to buy chlorine any more. Does salt disinfect or sanitize pool water?

**NO. Salt is not a disinfectant or sanitizer. Salt does not kill bacteria, inactivate viruses, or breakdown undesirable organic material in pool water. The free chlorine generated from the salt is what disinfects or sanitizes pool water.**

- What is an electrolytic chlorine generator or ECG?

**This is an electrical device that generates free chlorine from salt added to the pool water or from salt added to a brine tank. This is also known as a salt chlorinator.**

- How does an ECG work?

**Water containing dissolved salt is pumped through an ECG reaction cell. Very simplified, an electrical charge across metal plates in the reaction cell takes a chloride ion from the salt and combines it with part of a water molecule to form free chlorine.**

- Are ECGs approved for use at public swimming pools in Michigan?

**YES. Any ECG that is certified to the NSF/ANSI 50 sections on inline or batch type electrolytic chlorinators can be used. Listed ECGs that are certified to NSF/ANSI 50 also comply with Rule 57 of the Public Swimming Pool rules. Please provide information that that a proposed ECG is certified to NSF/ANSI 50.**

- Can ECGs be used as a standalone disinfection or sanitation device on a public pool in Michigan?

**YES. But just as with standard liquid feeders and tablet erosion feeders that comply with Rule 57, this depends on proper sizing with the correct number of reaction cells.**

- How do you size an ECG for an existing pool?

**The best way to size an ECG for an existing pool is to know how much chlorine the pool actually uses each day. Use the highest daily chlorine usage as a basis to determine the number of ECG reaction cells to install. Please note that manufacturers often advertise their minimum cell size as capable of handling a 40,000 gallon pool. This sizing is NOT intended for commercial pools, but for backyard pools only.**

- What if the actual chlorine usage is not known for an existing pool or a new pool?

**For existing pools and new pools where the actual daily chlorine consumption is not known, an estimate must be made. The estimate will consider whether the pool is indoor or outdoor, the pool volume, pool flow rate, highest bather load, and the number of hours per day the pool is open for use. The ECG manufacturer should have a formula based on these factors to determine the number of reaction cells needed. If the manufacturer does not have a formula, then we divide the pool volume by 8000 to estimate the number of pounds of chlorine the cells need to produce. We then divide this by the chlorine generation rate of one cell to get the total number of cells required.**

- What about the salt? What kind of salt can be used?

**The salt used in the pool or in the brine tank must meet the manufacturer's specifications. Generally this is a food grade salt such as used in water softeners without iodine or anti-caking additives. Rock salt or road salt cannot be used since it contains a significant amount of contaminants such as chemicals and rocks. Pool companies now carry salt that can be used for this purpose.**

- How much salt do I need for my pool? How do I know if I have the right amount of salt?

**Most inline salt generators require about 3000 parts per million of salt in the pool. This is equal to 50 lbs of salt per 2,000 gallons of pool water. If your pool is 24,000 gallons, then you would need 600 lbs of salt to start with. During operation, salt chlorinators have sensors that indicate whether or not the pool has the correct amount of salt. However, DEQ highly recommends having a test kit or test strips to measure the salt level directly from the pool. DEQ recommends weekly testing for the salt level.**

- What operational problems are associated with salt chlorinators?

**In order to manufacture chlorine, the electrical charge generates heat on the metal plates in the reaction cells. This heat causes calcium in the water to attach to or scale on the surfaces in or near the reaction cells. This scaling will reduce the chlorine manufacturing efficiency of the cell or prevent it altogether. The manufacturer has routine maintenance procedures required to remove the scale from the reaction cells. If the pool water is not properly balanced, scale may also build up in the piping near the salt chlorinator, blocking the water flow.**

- Are there problems with wastewater from a pool with an ECG installed?

**It is not lawful to discharge pool wastewater containing salt (filter backwash or draining the pool) into a lake or stream, into a storm sewer, or onto the ground surface without a permit. Pool wastewater containing salt may be drained into a municipal sanitary sewer system. However, it is necessary to first seek permission from the local sewer authority. Some smaller community sanitary sewer systems may not be able to handle the draining of a pool with or without salt.**

- Is an automatic controller for chlorine and pH required for the installation of an ECG?

**NO. The pool rules do not yet require automatic controllers for pools. However, controllers are sometimes offered by the manufacturer as an option with ECG installations. The DEQ strongly encourages the installation of automatic controllers.**

- What is the procedure to install an ECG on a public swimming pool?

**The MDEQ considers the addition of an ECG to an existing pool as an equipment change or modification. ECG installations or any other change to the pool equipment is not allowed until approved by MDEQ. A proposal to install an ECG must include the manufacturer's make, model number, chlorine production rate, and number of reaction cells. The make and model number of the pool controller and an installation diagram of the entire installation is also required. A form for submitting ECG installation proposals is available on this website. This form and an Equipment Change Form must be submitted for each pool. Depending on the complexity of the pool and or the ECG system, a construction permit may be required for each pool.**

- Can an ECG be used to supplement an existing chemical feeder?

**YES. The ECG could be installed to decrease the amount of chlorine chemical that needs to be purchased. However, a controller is required to make this arrangement work properly. However, the strong MDEQ preference is to size the ECG so it can stand alone.**

- Where is the ECG or Salt Chlorinator Installation proposal form found?

**This approval form is located on the MDEQ's [Pool Web site](http://www.michigan.gov/deqpoolspools) ([www.michigan.gov/deqpoolspools](http://www.michigan.gov/deqpoolspools)). This form must be submitted to our office by e-mail or fax for each proposed installation. Our approval is required before the installation is completed. Please plan at least two weeks to receive an approval.**

- What other forms or submittals are required?

**To assist in our evaluation of the ECG installation, in addition to the salt chlorinator proposal, please submit a Public Swimming Pool Equipment Change Form. This form is also located on our website. In the event that the ECG submittal is sufficiently complex to require a modification construction permit, we will notify you accordingly.**

NOTE: The information in this document is intended to supplement the public swimming pool portions of the Public Health Code, 1978 PA 368, as amended, and the Public Swimming Pool Rules. The comments in this document are subject to change at any time without notice. These comments do not replace or supersede any portion of the Act and Rules. To download a copy of the Public Swimming Pool Act and Rules, please go to [www.michigan.gov/deqpoolspools](http://www.michigan.gov/deqpoolspools)