

WHAT IF WE DO NOTHING?

The Village is under orders by the Wisconsin DNR to reduce the concentration of chlorides that are discharged by the wastewater treatment facility (WWTF), or the DNR could require the WWTF to add additional treatment processes to remove these compounds. As advanced tertiary treatment would be required to remove chlorides, it is estimated that the process addition would cost over \$20M and likely increase the sewer rates by over 50% due to the higher O&M and capital costs associated with a project of this size. Use Minimum Salt for Regeneration

Water softener regeneration is most efficient at the beginning of the brining cycle. The higher the salt dosage in the cycle, the lower the regeneration efficiency.

By setting your water softener to regenerate more frequently and using less salt for each regeneration, you may be able to increase your softener's regeneration efficiency, which could result in significant salt savings for you.

Consult with a qualified water softener representative for details on how to adjust your water softener to minimize salt usage while retaining enough softened water for normal household use.

SWITCH FROM A TIMER TO A DEMAND INITIATED REGENERATION CONTROL

Many water softeners regenerate based on a timer typically set to regenerate once every 2 or 3 days, depending on expected water usage and water hardness. By measuring actual demand on the water softener, "demand-initiated regeneration," (DIR) controls are much more efficient in the regeneration process. These controls use either a flow meter or a hardness sensor to determine when to begin the cycle. The "payback" period for adding a DIR control to your water softener from reduced salt usage can be as little as 3 years.

HOW CAN I HELP?

Check with your local qualified water softening representative to see what is appropriate for your particular needs. Even if a newer more efficient water softener is not in your immediate future, you can still optimize the efficiency of your home unit, resulting in savings for you and the environment.

To reduce or eliminate NaCl pollution, our best alternative is preventing the pollution at the source of its generation – before it creates a more serious environmental problem. Please do your part if you can.



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VILLAGE OF TWIN LAKES
Water Softeners and the Environment

TYPICAL SOFTENER SYSTEM



TIMER BASED SYSTEM



DEMAND INITIATED REGENERATION (DIR)



WHAT IS THE PROBLEM?

You can easily reduce high concentrations of salt which flow from your house or business to the Village's wastewater treatment facility, and ultimately end up in our lakes, streams, rivers, and groundwater. The cumulative effects of each homeowner's excess use of salt and resulting brine discharge can have toxic effects for aquatic plants and animals.

WHY IS WATER SOFTENER SALT A PROBLEM?

The primary salt utilized in home water softeners is sodium chloride (NaCl), a naturally occurring and commonly used substance. NaCl normally breaks down into sodium (Na+) and chloride (Cl-). These elements are discharged to the Village of Twin Lakes wastewater treatment plant via the sanitary sewers. It passes through the treatment plant and is discharged to a tributary to Bassett Creek, and ultimately flows to the Fox River. The chloride may impact freshwater organisms and plants, from plankton to fish, and changing the characteristics of the entire local ecosystem.

AM I TREATING FOR IRON REMOVAL OR SOFTENING?

Many of the homes in the Village of Twin Lakes have high iron bacteria levels in the water and moderate water hardness levels in the range of 10 to 20 grains. While a traditional water softener can reduce the iron bacteria levels significantly to below the recommended level of 0.3 mg/L, this process tends to use elevated levels of sodium chloride (salt) in this process. If you are treating water primarily for iron removal, you should consider switching to an air iron treatment filter that eliminates the use of sodium chloride for the generation process. Additional information on air iron treatment filters can be found at <https://www.water-right.com/products/impression-plus-air-system/>

HOW DOES A WATER SOFTENER WORK?

In many Wisconsin communities, people use water softeners to remove minerals from their water that causes hardness. An ion exchange process is the traditional method of removing hardness from water for household use. Hard water passes through a column of sodium charged resin, where hard water ions such as calcium and magnesium are removed from the water by exchanging places with the resin bound sodium ions. The water is then said to be "softened."

The resin is "exhausted" when it has given up all or most of its available sodium ions. The resin is then "recharged" with sodium ions during a process known as regeneration. During this process, the resin is washed with a concentrated brine solution (most often NaCl) that reverses the hardness removal process.

WHAT CAN I DO TO REDUCE MY SALT USAGE?

Soften only the water that needs to be softened. If you are building a new house, remodeling bathrooms or kitchens, replacing old plumbing or installing a new water softener, consider where your water needs to be softened. Work with your plumber to connect your water softener to only those areas that need softened water.

PLACES TO "FEED" SOFTENED WATER ARE:

- Hot water heater
- Laundry facilities
- Dishwashers
- Toilets
- Showers

PLACES TO BYPASS USING THE WATER SOFTENER INCLUDE:

- Outside water spigots for yard use
- Cold tap drinking water lines