

# Water Softening for Small Water Systems



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Most water softening at small systems is accomplished with an ion exchange unit (water softener) that removes hardness from water. Water softeners are typically installed to treat all or much of the water supply in a building. Dissolved calcium and magnesium cause hardness in water. An ion exchange unit uses a resin that exchanges sodium ions for calcium and

below is an example of a poorly maintained brine tank. It is recommended to clean and disinfect the brine tank with a weak chlorine bleach solution at least once a year.

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magnesium ions as the water passes through. A brine (salt) tank provides the ion exchange unit the sodium required to regenerate the resin bed on a periodic basis.

Periodic backwashing of the resin is required to remove solids that have become attached. Regeneration and backwashing are usually done automatically with a meter or time clock control. This can be adjusted if needed or desired because of changes in water use, or for improved efficiency or effectiveness. This backwash water must be disposed in an approved manner. **The backwash line must discharge to a waste receptacle through an air gap.** In the event that back-siphonage occurs during backwashing, an air gap will prevent contaminated water from being drawn into the water softener.



Water Softener - MRWA Photo



Air Gap - MDH Photo

The brine tank must have salt in it at all times. If the tank is allowed to sit empty, bacteria may grow inside the brine tank and contaminate the water supply. The picture

below is an example of a poorly maintained brine tank. It is recommended to clean and disinfect the brine tank with a weak chlorine bleach solution at least once a year.



Dirty Brine Tank - MRWA Photo



Proper Salt Storage - MRWA Photo

If you purchase salt bags, it is important to keep the bags stored up off the floor to prevent contamination of the salt prior to being used in the water softener. Be sure to follow the manufacturer’s recommendations about the correct salt to use in your water softener. Using the wrong type of softener salt could result in the softener not working correctly.



Be aware that the softener brine tank is an opening to the environment and a location where contaminants can enter the system. Be sure the brine tank has a tight fitting overlapping cover in place at all times except during servicing of the unit.