



Technical Tips

How to Minimize Wastewater from Your Water Softener and/or Filter System

Water treatment systems, including water conditioners, reverse osmosis filters, iron filtration systems, and other types of backwashing conditioning systems, all produce wastewater as a result of their standard operation.

Unfortunately, it is very common for water softeners, iron filter systems, and other filtration systems to be installed and then ignored. As a homeowner you may have even inherited a water softener, reverse-osmosis filter or backwash filtration system when you first acquired your house, and never given it much thought.

The good news is that you can still reduce your wastewater by taking just a few simple measures:

The Top 5 Steps to Minimizing Water Conditioning Wastewater:

1. Identify the model of system you own
2. Analyze the water before and after the system to determine if it is functioning effectively
3. Check your system's configuration settings
4. Change the configuration settings in order to optimize water use
5. After 1 - 2 weeks, re-test and monitor the water before and after the system

See below for more system-specific guidelines for reducing your wastewater:

Water Softeners

Water softeners remove calcium hardness from water with a method known as ion-exchange. These systems often backwash and clean the softening resin by way of a salt brine solution, in what's called a regeneration cycle. In the course of the regeneration cycle, a quantity of wastewater is produced, which cannot be re-used for garden water and is sent to a sewer or septic tank.

Most water softeners have a flow sensing unit that meters the quantity of water being used and allows the softener to back-wash and regenerate based on the quantity of water the softener has treated between regenerations.

How to Minimize Water Softener Wastewater

- Check hardness levels before and water softener
- Check to see the number of gallons (or days if it is a time-clock type control) between regeneration cycles that the softener is currently set to regenerate
- Determine how many pounds of salt, for each cubic foot of resin, the conditioner is currently set to use for every regeneration
- Modify the settings to allow for more days between regeneration cycles Adjust the lbs of rock salt used, if greater than 9 lbs of salt per cubic foot
- Monitor water softener and on the day before the regeneration, and verify that the water continues to be softened to make sure the settings have not been too aggressive.

Iron Filters and Other Backwashing Filter Systems

Virtually all iron filters, carbon backwash filters, acid neutralizer filters, and turbidity filters use some water to periodically backwash and rinse out the filter media inside the system. Just like water softeners, these filter systems can backwash depending on the amount of water used, or they may have simple time clock controls that backwash according to the day of the week, and/or days or weeks between backwashes.

How to Decrease Backwash Filter Wastewater

- Analyze water both before and after system (for pH, iron, sediment etc) Check to see how many gallons (or days if a time clock type filter) between regeneration cycles the filter system is currently set to backwash
- Determine how long the particular backwash and rinse cycles are set for.
- Modify the settings to allow for more gallons or days in between backwash cycles. Adjust the number of minutes the backwash and rinse cycles are set for. Set for the minimum number of minutes advised by the manufacturer. Typically this will be 6-8 minutes for backwash and 4-6 minutes for rinse cycle.
- Monitor, filter, and test the water frequently, both before and after the filtration system, and on the day before a backwash.
- Look for changes in water quality and/or a reduction in water pressure, which may signify fouling of the filter media due to inadequate backwashing.
- Do not make big reductions in time or days between cycles. Start by reducing it by 10 or 20 percent in order to avoid fouling your filter media.

Point-Of-Use Reverse Osmosis Systems

Reverse osmosis devices remove total dissolved solids, dissolved salt, and metals from water through a semi-permeable membrane in a process known as "reverse osmosis." RO systems use cartridge filters that filter chlorine, chemicals, tastes and odors from your water. During the RO process, the RO membrane sends waste water to the drain while simultaneously allowing pure water to permeate through the RO membrane.

How to Decrease RO System Wastewater

- Analyze your water's TDS levels before and after your RO system to make certain it is eliminating at least 90% of total dissolved solids.
- Keep pre-filters changed regularly. A clogged pre-filter may foul the RO membrane and reduce the amount of pure water being produced, which can increase the volume of waste water.
- For best results, drain the RO tank entirely each time you use the pure water. This will allow the RO membrane to produce the greatest quantity of pure water while producing the least amount of wastewater. As the RO pressure tank fills completely, the volume of pure water produced will lessen, while the amount of wastewater will remain the same; as such, it's far better to operate on an empty tank whenever possible.
- If you have an old RO system, consider switching to a new, more efficient RO system or retro-fitting your RO with a so-called "permeate pump," which mimics the effects of an empty RO tank to create significantly less wastewater.
- Empty the RO tank through a faucet and check the air pressure in the RO pressure tank. Be sure it is adjusted to 7-9 PSI and/or follow the manufacturer's instructions to keep the proper amount of air pressure within the tank. If the RO pressure tank loses pressure, the system will not function effectively.
- If it is feasible, consider routing the RO wastewater line outdoors during irrigation season to re-use for shrubbery/landscaping.

Finally, if your system was installed professionally, consider contacting your water treatment professional and scheduling a service call. A water treatment pro can easily examine and improve your system to reduce waste water while maintaining a high level of water quality.

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