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A not-for-profit organization

Salinity Management

Water Treatment Industry Toolkit

Water Quality Association

Courtesy of The Water Quality Association
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Salinity and Water Issues: Facts and Opportunities

Water falling from the sky is soft. But salinity eventually finds its way into our water – both from nature and from human activity.

The problem of salinity is not new, but it has been gaining more attention from policymakers. Salinity can be a genuine problem. It can affect some plant growth. While many plants are salt tolerant, too much salt prevents some salt-sensitive plant roots from taking in water from surrounding soil. This lowers the amount of water available to the plant, even if there is sufficient water actually in the area.

The Water Quality Association has demonstrated its commitment to finding meaningful solutions to the issue of salinity. We hope this toolkit will help provide answers to crucial questions as we work together to serve consumers and the environment.

What exactly is salinity?

Salinity is the amount of dissolved mineral salts in water. This includes calcium, magnesium, sodium, sulfate and chlorides. Many of these minerals occur naturally in the environment and are how these minerals make their way into our drinking water supplies.

In fact, the vast majority of wastewater salinity comes from the groundwater itself, agriculture, commercial and industrial activity, road de-icing, and other human uses, such as water softeners, household cleaning products and pharmaceuticals.

Solutions & options

Controlling all sources of salinity is necessary to properly protect our water supplies. The water softener industry has made great strides in addressing the salinity challenges we face, especially in the southwest. There are now devices available that provide the same benefit as existing water softeners but operate more efficiently, resulting in less salt discharge into the sewer system, if at all.

Consumer education is crucial, too. Users need to make sure their softener settings make sense for their needs. Softeners should be put in a regeneration mode that doesn't soften water that won't be used.

Softened water benefits

It is important to remember, too, that softened water also provides benefits.

- Softened water is not merely a convenience. In many cases, softeners are an enabling technology, helping other appliances run more efficiently and with much less energy consumed. For example, tankless water heaters require softened water to operate over a long period of time.
- Clothing and household linens are harmed by hard water. The deposit of hardness onto fibers makes them more brittle and subject to breaking.
- Softeners can save detergent and energy. An independent study shows consumers can cut back on dish and laundry detergent use by 50 percent or more and lower washing machine temperatures from hot to cold just by using softened water. In fact, you can even find better stain removal and whiter clothes using less detergent and colder water just by softened water.
- Water softeners can extend the life of appliances. That means saving consumers money and energy and keeping our landfills a little less full.

What about "alternatives" to water softeners

As noted above, water softening is the removal of calcium and a few other minerals that can cause water to damage pipes, appliances and clothing. The only practical way to do this in the home is to use a water softener, that is, an ion-exchange water softener system. Consumers who purchase an "alternative" will not have soft water.

A portable exchange (PE) softener is a soft water alternative to automatic regenerating water softeners. While PE softener service can be an option is some areas, PE softener service has been discontinued or is simply unavailable in many areas of the country. In areas where it is available, PE softener service will eliminate the salinity issue from the residence. However, it is not eliminated completely as the salinity discharge would move to a centralized location where it will inevitably need to be addressed by a regeneration plant operator.

More about The Water Quality Association

WQA is a not-for-profit international trade organization representing the residential, commercial, and industrial water treatment industry. Its membership consists of both manufacturers and dealers/distributors of equipment. WQA is a resource and information source, a voice for the industry, an educator of professionals, a laboratory for product testing, and a communicator with the public. To learn more about WQA and its professional certification programs, visit wqa.org

The Water Quality Association Water Treatment Industry Toolkit

The Water Quality Association provides these fact sheets and resource guides as a service to its members, policymakers, and the general public. They are designed to promote discussion on key issues through facts and data.

How water softeners work

There are a few different ways to soften water. The most customary is with the use of an ion-exchange water softener. These devices remove the minerals that are responsible for hardness in water, calcium and magnesium. The byproduct of the process is brine waste – which has high levels of salinity – that usually discharge into the wastewater collection system.

Residential water softeners make a convenient target for those concerned about salinity. The devices are, after all, a very noticeable part of the home and a major component in millions of people's quality of life.

What often gets lost is this simple fact: Residential softeners contribute usually only 10 to 15 percent to the salinity problem in many hard water areas, such as parts of southern California. In other areas, softeners are a much smaller source of salinity. The vast majority of wastewater salinity comes from other sources –agriculture, commercial and industrial activity, road de-icing, and other human uses.