Salt-free Water Conditioners

If you are more environmentally minded and reducing chloride input into our waters is important to you, a salt-free water conditioner may fit the bill. There are trade-offs between these devices and ion-exchange water softeners. Refer to the following resources to determine if a salt-free water conditioner is for you.

There are two types of salt-free water conditioners:

1. Water conditioners that soften water
2. Water conditioners that prevent scale buildup

A summary of the different water conditioning technologies is found **here**. Some are more appropriate for commercial or industrial use rather than residential.

Salt-free Water Conditioners that Soften Water

Reverse osmosis is an effective salt-free method of removing the minerals that cause hardness as well as many contaminants and undesirable tastes and odors. A whole-house system or commercial system can be expensive, and a substantial amount of water is wasted filtering the incoming water.

Capacitive deionization also produces softer water but is expensive and used more for commercial or industrial facilities.

Scale Prevention Devices

There are devices on the market that claim to “soften” water or prevent scale build-up. Make sure you understand if they will remove the calcium and magnesium ions (soften) or just change the way they behave (descaler). Not all are third party tested or proven to work. The most proven university-tested scale prevention technology (descaler) is ***template assisted crystallization (TAC)*** also known as nucleation assisted crystallization (NAC). These devices do not soften water but may prevent scale formation by causing the hard water ions to aggregate (clump) and stay in the water rather than deposit on plumbing fixtures. Some devices may remove existing scale that builds up in pipes as well as prevent formation of scale.

Study of actual household use of salt-free systems. The region of Guelph in Waterloo, Ontario conducted a market research study where they provided households with salt-free water conditioners and tracked their reactions to using them over a one-

year period. This study focused on template-assisted crystallization (TAC) which has been shown to reduce scale buildup by almost 90%.

Evaluation of Alternatives to Domestic Ion Exchange Water Softeners – study conducted at Arizona State University comparing scale removal from ion exchange water softeners, water conditioning devices, and no treatment.

Summary of Pros and Cons of Scale Prevention Devices

Pros

- Save money - no salt to purchase
- Save your back - no salt bags to haul to the basement
- Keep salt out of the lakes and rivers
- Keep salt out of groundwater (for those on septic systems)
- Lower environmental footprint
- Prevents scale buildup on plumbing fixtures and in pipes and appliances
- May remove scale buildup from pipes
- No sodium in the drinking water
- Depending on the technology, some use no electricity or water

Cons

- Need to make sure you do your research and get a conditioner that is proven to work
- Water will not be soft- if you are accustomed to soft water, it will be an adjustment
- May see a film on dishes that wipes off easily
- Dishwasher may not clean dishes as well
- Clothes may not be quite as clean
- Will not produce as many soapsuds
- May see soft scale spotting on plumbing fixtures that you can wipe off
- Not for use with lead pipes - you do not want the protective scale removed
- Water sources can have different water chemistries that can alter the type of scale formed and affect the function of scale prevention devices

Tips for Cleaning when Using a Scale Prevention Device

Since scale prevention devices do not soften water, common cleaners may not work as well, and spots and soft scale may form on dishes, appliances, and plumbing fixtures. Use a citrus-based (citric acid) detergent, cleaner, booster, or rinse aid for your dishwater; appliance cleaner for your dishwater and washing machine; and dish soap for doing dishes to improve scale removal and cleaning. There are also citrus based spray and other liquid cleaners for glass, tile, toilet bowls and other surfaces.

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