

Water Softeners & Deionizers are a Great Investment!

Ben Scherschel, On The Go® Portable Water Softener, LLC

Water Softeners Attack the Issues of Hard Water:

Water softening is the reduction of concentrations of calcium, magnesium and other metal cations (positively charged ions) in hard water. These "hardness ions" can cause a variety of undesired effects, including interfering with soaps and the build-up of limescale. This can affect the life of appliances by causing rust stains, change water taste and odor, create excessive water spots and cause rough, dry skin.

More than 85% of American homes have hard water. As avid RVers travel throughout the U.S., they will discover several campgrounds and RV parks have hard water. The Sun Belt states, including Florida, Louisiana, Texas, Arizona, New Mexico and California, can have "extremely" hard water. With more than 8 million RVs in the U.S. and more than 200,000 RVs made each year, most RVers don't realize they are damaging their investment with hard water. Sinks, toilets and showers with hard water damage can make it difficult to resell an RV, and hard water will greatly reduce the life of hot water heaters. RVers are also denied the advantages of improved taste and odor that soft water provides for consumption (like for their coffee every morning!).

So, what makes water hard?

The words "hard water" describe water that contains calcium and magnesium – the hardness minerals. Rainwater begins as soft water, which is free of these hard minerals. As rainwater passes over and through the earth, flowing into lakes, rivers, streams and groundwater, it absorbs hardness minerals. While these minerals aren't harmful to your health, they do affect the properties of water and its effectiveness for washing and cleaning. Although water hardness usually measures only the total concentrations of calcium and magnesium (the two most prevalent metal ions), iron, aluminum and manganese can also be present at elevated levels in some locations. The presence of iron characteristically gives a brownish color to the calcification instead of white.

Water hardness is typically measured in GPG [grains per gallon] or PPM [parts per million]. Soft water will range between 0-3 GPG while moderately hard, hard and very hard range from 3-58 GPG. Total hardness test strips are used to measure "water hardness". These test strips are perfect for measuring the water source to help determine capacity, the outlet water flow for softness and overall performance of the water softener. They offer a wide range of detection and are calibrated to be accurate and sensitive. With their low cost and high accuracy, hardness test strips also save customers time and money. No more counting drops or waiting for laboratory results, as hardness levels can be determined in seconds.

Selecting a portable water softener:

Many factors should be considered when purchasing a water softener for an RV:

- Capacity and Weight
 - The most compact softener is typically about 8,000-grain capacity and weighs about 18 lbs.
 - The largest compact model will have about 16,000 grains and may weigh about 30 lbs.
- Exchange Resin
 - Only softeners with high-grade premium exchange resin should be considered
 - The color of resins will not indicate quality
- Easy Access for Regeneration
 - The large mouth opening allows easy filling of the salt
- Accessories
 - Carrying handle
 - Inlet flow control for easy regeneration
 - Storage/transportation adapters to eliminate water spillage
 - Sturdy, stable base

Helpful hints about softener units: the ion exchange process which requires salt to be added periodically to the water softener unit. is called "regeneration". Every softener should undergo back-flushing to maintain the performance of the unit. Using a water carbon filter is a bonus, as it reduces chlorine and total organic compounds improving both taste and odor. However, filters are only effective for small volumes of water and do not dissolve hard water minerals.

Deionizers: The SIMPLE way to a SPOT-FREE rinse!

Deionized water has ALL the dissolved mineral solids removed. Dissolved solids are the culprit causing water spots after rinsing RVs. As your customers travel across the United States, you will discover that most water sources have various degrees of total dissolved solids [TDS] ranging from 50 up to 1000 PPM of total solids. These solids are water spots which can cause etching of the paint, below surface paint damage requiring time-consuming compounding, and in some cases paint repair. Without deionized water, excessive time and labor are required for towel-drying or very expensive 3rd party cleaning. A deionizer uses ion exchange technology to remove all solids from the water source, leaving no spots after rinsing.

Deionization by Ion Exchange

In the early 1800s, several scientists discovered the ion exchange process, the ion exchange industry in the U.S. was born in the early 1900s when cation (ions) exchangers were first synthesized. All naturally-occurring water contains dissolved mineral salts. In this solution, salts separate into positively-charged cations and negatively-charged anions. Deionization can reduce the amount of these ions to a very low level through the process of ion exchange. Deionization is commonly achieved by passing the water through successive ion exchange columns. In one column, ions are exchanged for H+ ions. In another column, anions are exchanged for OH- ions. Following a reaction of H+ with OH- ions, no ions remain in the solution. It is produced through ion exchange. Simply said, water flows over porous beads that are positively and negatively charged and the minerals or total dissolved solids are removed. These ion exchange columns are porous beads called exchange resins.

Measurement and Limits...

Deionized water is measured using a total dissolved solids [TDS] instrument. A TDS meter will measure all the solids in the water stream in parts-per-million [PPM]. Most spot-free applications should not exceed a TDS of 50 PPM.

Design and Model selection

Deionizers can be found with various designs such as mixed-bed, dual-bed or tri-bed designs using various deionization exchange resins. Top manufacturers will sell units capable of producing laboratory-grade water with applications ranging from spot-free rinses to kidney dialysis.

Important parameters for your customers to consider during the deionizer model selection: flow rate, the water quality required, TDS of the water source, usage per week and cost per gallon.

High-grade virgin exchange deionizer resin will produce the highest quality water and the greatest capacity with the best consistency over time. Regenerated resins produce lower quality deionized water and will result in less capacity or gallons. They may seem less expensive, but most do not account for these factors....DON'T let your customers be fooled – have them look at the cost per gallon performance.

Softeners vs. Deionizers.....DON'T BE CONFUSED

Softeners

• Use for all internal water applications

- Use total hardness test strips for measuring "Water Hardness"
- Uses salt to regenerate the resin at various frequencies depending on the hardness of the water source and daily usage. Softener exchange resin has a life of 7-10 years.
- Produces water providing many advantages, but they do not produce water that will result in a spot-free rinse.

Deionizers

• Use for external spot-free rinses

- Use TDS meter for measuring "Total Dissolved Solids"
- Deionization exchange resin will become exhausted based upon the TDS of the water source and usage
- Mixed-Bed deionizer resins cannot be regenerated. Select a high-grade virgin resin as a replacement for best water quality and capacity, this ultimately equates to a lower cost per gallon.
- Produces laboratory-grade water that removes mineral solids which cause spots