Treat Hardness in Drinking Water

If you have white buildup on the end of your faucets or scale forming on shower walls or doors as water evaporates, you probably have hard water.

Hard water contains high mineral content that is formed as water travels through rock formations containing calcium and magnesium. It is a common problem throughout much of the United States as well as other parts of the world. Hardness is usually measured either in milligrams per liter (mg/L) or grains per gallon (gpg), with water containing over 180 mg/L (or 10 gpg) being considered very hard water.

Options for Treating Hard Water

Wherever water hardness is a concern, water softening is frequently used for treatment. The most common systems contain a cation exchange resin, which attracts dissolved positively charged ions like calcium and magnesium from the water as the water flows past the resin. The resin does need to be regularly backwashed with a sodium or potassium chloride solution to regenerate. This is during what is known as a backwash cycle where water that contains the excess sodium or potassium chloride is discharged. These systems can also be effective at reducing barium or combined radium (Radium 226/228).

Many salt-based water softeners have been verified to meet American national standard NSF/ANSI 44 – Cation Exchange Water Softeners. This standard not only verifies the ability of a softener to reduce hardness from 20 gpg to less than 1 gpg, but also helps ensure that the internal surfaces are safe for contact with drinking water and that the system is structurally sound. Softeners that minimize water and salt use can also be efficiency rated. For a list of NSF International certified water softeners, visit: NSF/ANSI 44 certified softeners.

Many consumers ask about non-salt systems and if they will reduce the hardness in the drinking water. These non-salt systems are designed to help control scale build-up in your pipes, but not to soften water. Technologies that fall under this category include magnetic, electromagnetic, various types of media, physical devices, chemical addition and more. Because they do not use cation exchange treatment technique, these products do not fall under the scope of NSF/ANSI 44.

For more information on water treatment systems, contact NSF International’s consumer information specialist at 734.418.6612 or info@nsf.org.