Water Softening versus Scale Prevention

Calcium (Hardness) Formation

Much of our drinking water comes from ground water which originates from precipitation that falls in the form of rain or snow and seeps into the ground, filling the open spaces, or pore space, within layers of sand or gravel (formations) beneath the land surface. As the rain or snow passes through the atmosphere, it becomes enriched with carbon dioxide (CO_2) and combines with the H_2O (water) to form a solvent of calcium known as carbonic acid (H_2CO_3). As the rain seeps into the ground, the carbonic acid extracts calcium from the calcium rich stone and forms hydrogen carbonate [Ca (HCO_3)2]. When the extraction process ends, the water is saturated with calcium and the carbonic acid forming a carbonic acid/ calcium equilibrium. Depending on the ground quality, the amount of calcium and amount of carbonic acid determines whether more or less calcium is extracted into the water.

Calcium Scale Buildup on Pipes and Hardware

Calcium Scale is a hard thick coating or covering of calcium carbonate ($CaCO_3$) that forms on heating elements and on the pipes and hardware of plumbing systems. As the calcium rich water enters into the home, the carbonic acid/ calcium equilibrium becomes interrupted within the pipes. Because the hydrogen carbonate (Ca (HCO_3)2) is a very weak chemical compound, temperature increases or movement cause the compound to breakdown and parts of the calcium (Ca_2), magnesium (Mg_2) and bicarbonate (HCO_3) are no longer dissolved and attach to the surfaces of pipes, heaters, and hardware. Over time, the scale compounds and is very difficult and costly to remove.

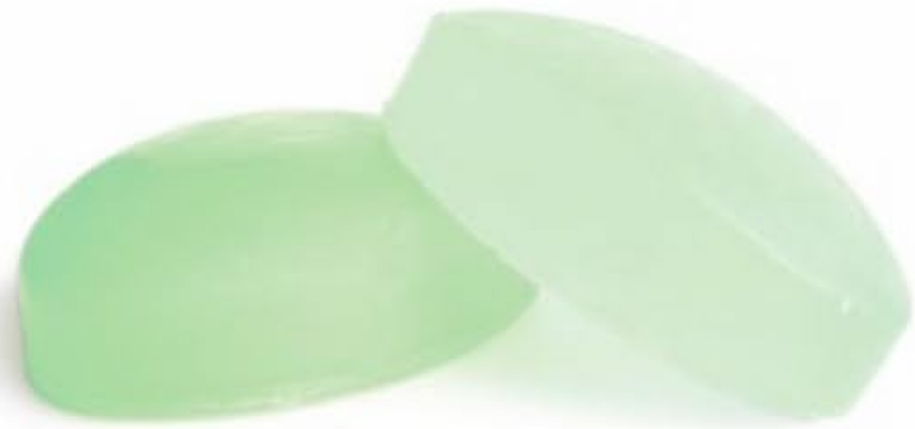
Effects of Calcium in Your Water

The ***negative*** effect of calcium is that it creates scale on pipes, hardware, and surfaces. This leads to high energy costs for heaters and expensive repairs for ice machines, coffee machines, and other appliances. The scale also may breed bacteria.

The ***positive*** effect of calcium enriched water is a health benefit and an important nutrient needed to help prevent or minimize diseases such as heart disease. Ideally, consumable water should contain adequate amounts of calcium and magnesium which are both found in hard water.

Filtersorb SP3 Media

The technologically advanced Filtersorb SP3 Media is the innovative solution that prevents all of the negative effects of calcium and magnesium, while allowing the positive health benefits to remain. The system is maintenance free, chemical free, salt free and does not require regeneration and backwashing.



The FilterSorb SP3 media has been tested and meets NSF 61 standard. This is an independent test standard for health effects that was performed by the WQA, Water Quality Association.