

Discover the Difference



Many water supplies, municipal and well, contain hardness minerals (calcium and magnesium). These minerals form a scale and create problems in water heaters, washing machines, dishwashers, coffee makers, humidifiers and plumbing systems. Nelsen Scale Prevention Systems are designed to eliminate these problems providing your family with a refreshing difference, saving you money now and in the years ahead.

NELSEN SCALE PREVENTION SYSTEMS, feature FILTERSORB SP3® Technology. This technology transforms the calcium and magnesium carbonate (temporary hardness) of the water into mechanically stable and heat resistant calcite crystals (nanometre size) which no longer cause lime deposits. The calcium and magnesium crystals are rinsed away.



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 [$\text{Ca}(\text{HCO}_3)_2$]. 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 ($\text{Ca}(\text{HCO}_3)_2$) 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.

the Green Alternative Water Treatment

The Nelsen Scale Prevention System is a maintenance free system that does not require electricity, cost for salt, costs for water or any other regeneration material.



Complete System

- Enpress Vortech Pressure Vessel
- Riser Tube (Pre-Installed)
- Filter Media (May be Pre-Installed)
- C-Series In/Out Tank Head
- C-Series Bypass
- 1" NPT PVC Plumbing Adapters
- C- Series Wrench
- 1" x 10" Big Blue Filter Housing for 8", 9" and 10" Tanks
- 10" GAC Carbon Pre-Filter for 8", 9" and 10" Tanks
- 1" x 20" Big Blue Filter Housing for for 12" & 13" Tanks
- 20" GAC Carbon Pre-Filter for 12" & 13" Tanks
- Filter Housing Wrench
- Wall Mount Bracket for Big Blue Housings



Green Alternative to Conventional Water Softening

The classic water-softening unit operates on the basis of ion exchange; exchanging calcium and magnesium ions in water with an equivalent amount of sodium (Salt). When a water softener is used, the result is "soft water", with increased sodium content in the water supply. Additionally, softening units require water for backwashing and common brine water salt water for regeneration.

Alternatively, the Filtersorb SP3 water media acts as a catalyst by accelerating the transformation of the calcium and magnesium minerals into harmless Nano particles. When the inlet water goes into the water conditioner tank, the Filtersorb SP3 media acts as a catalyst and pulls the hardness minerals of calcium and magnesium out of the solution and then transforms these minerals into inactive Nano crystal particles. Because the hardness minerals have been transformed into Nano particles, these Nanoscopic particles make their way through plumbing systems without attaching to pipes, fixtures, valves, or heating elements. The end result being conditioned water with minerals, not "soft water" but water containing the same mineral content as the source.

Specifications

Specifications	System Tank Size				
	08x44	09x48	10x54	12x52	13x54
Inlet/Outlet Connection	3/4" - 1-1/4"				
Temperature	41° - 149° F				
pH	6.5 - 8.5				
Hardness / Iron	up to 100 grains / Less than 0.3 mg/l (ppm)				
Water Pressure	15 - 100 psi				
Maximum Service Flow (gpm)*	10	12	15	20	25
Filtersorb SP3 Media (Liters)	3	4	4.5	6.5	7.5
Overall System Height	49-3/8"	53-3/8"	59-1/2"	57-7/8"	59-1/2"
Overall System Depth	14-1/4"	14-5/8"	15-1/4"	16-1/4"	16-3/4"
Overall System Width	8-1/2"	9-3/8"	10-5/8"	12-5/8"	13-5/8"

* Service flow rate with a maximum hardness of 25 grains per gallon.

Water supplies with iron levels greater than .3 mg/l must be treated for iron removal prior to the system.



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