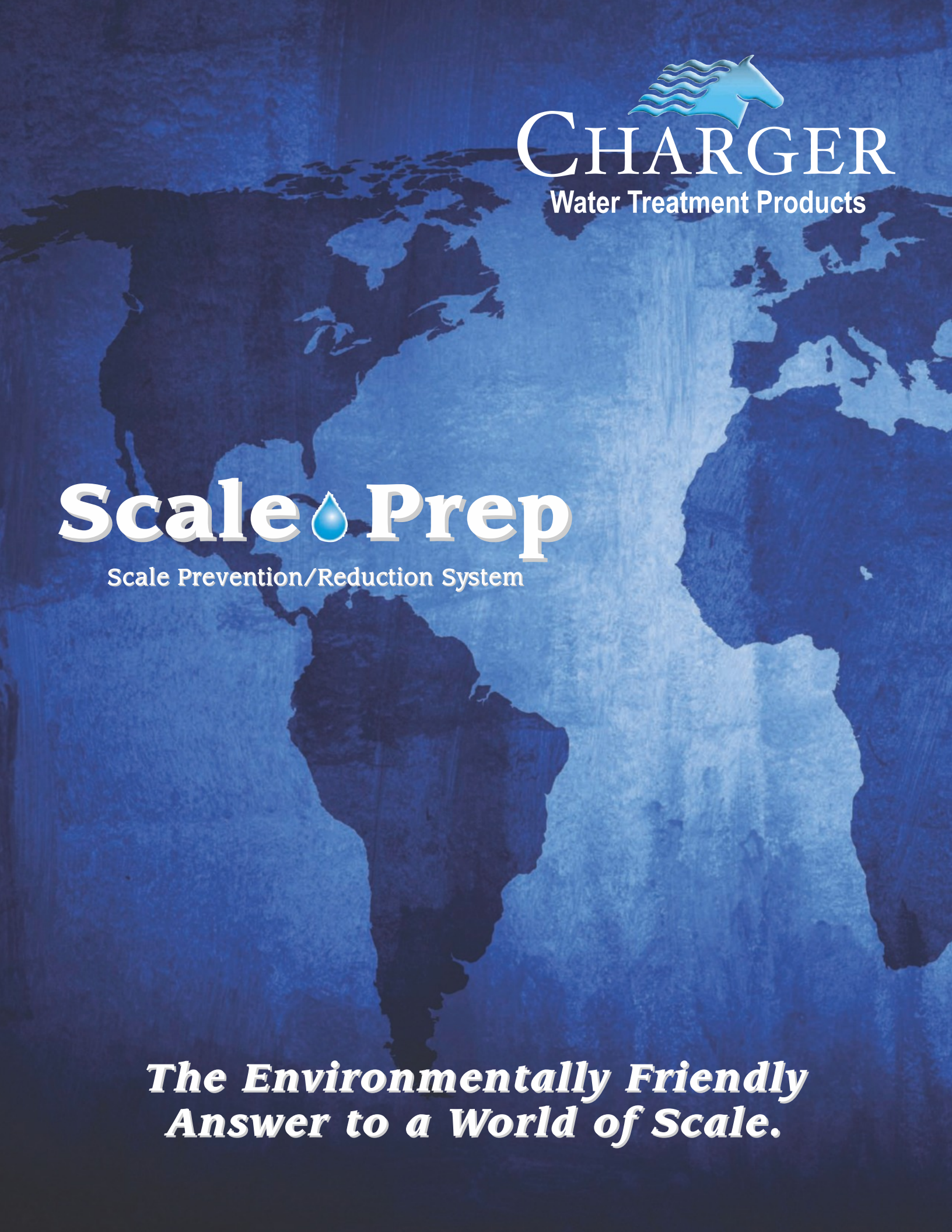
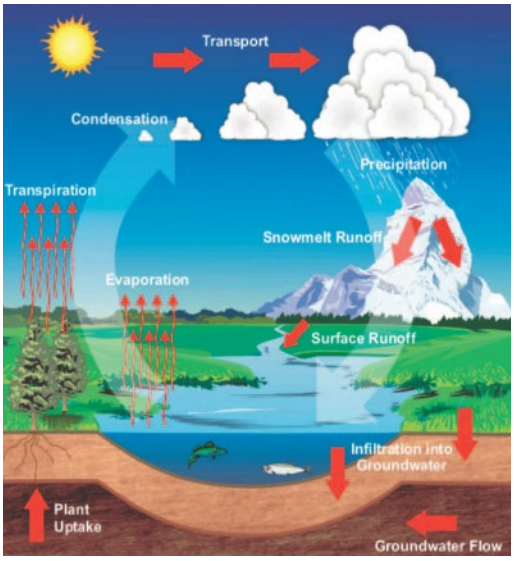

CHARGER
Water Treatment Products
Scale Prep
Scale Prevention/Reduction System
The Environmentally Friendly
Answer to a World of Scale.



Calcium Scale Basics

How does Calcium get into the water?

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 calciumfrom 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.

How does Calcium Scale develop 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.

What are the effects of Calcium?

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, reverse osmosis equipment and other appliances. The scale may also breed bacteria.

What Calcium treatments are available?

Water Softeners

The "classic" water softening unit operates on the basis of ion exchange; exchanging calcium and magnesium ions in the water for sodium ions. When a water softener is used, the result is not only soft water, but also increased sodium content in the water supply.

Magnetic and Electric Systems

Magnetic and electric systems are a relatively new invention. However, these systems only have a limited effectiveness at best, not a high enough percentage to prevent scale altogether.

Polyphosphate

The polyphosphate dissolves into the water and coats the iron, calcium and magnesium in it, making it difficult for these agents to precipitate.

Scale Prep SP3 Media

The technologically advanced Scale Prep Sp3 Media is an innovative solution that prevents all of the negative effects of calcium and magnesium, while allowing the positive health benefits to remain.

Scale Prep SP3 Operating Parameters	
Temperature Range	41˚ F to 149˚F
PH Range	6.0 to 9.0
Chlorine	No greater than 3ppm
Iron	No greater than .4ppm
Hydrogen Peroxide(H_2O_2)	No greater than .5ppm
Manganese	No greater than 0.05 ppm
Oil	Must be removed prior to use with Filtersorb SP3
Hydrogen Sulfide (H_2S)	Must be removed prior to use with Filtersorb SP3
Polyphosphates	Must be removed prior to use with Filtersorb SP3
Grains of Hardness	100 grains (Any application over 25 grains call for technical support and specifications)
General Life Span of Media	5 years

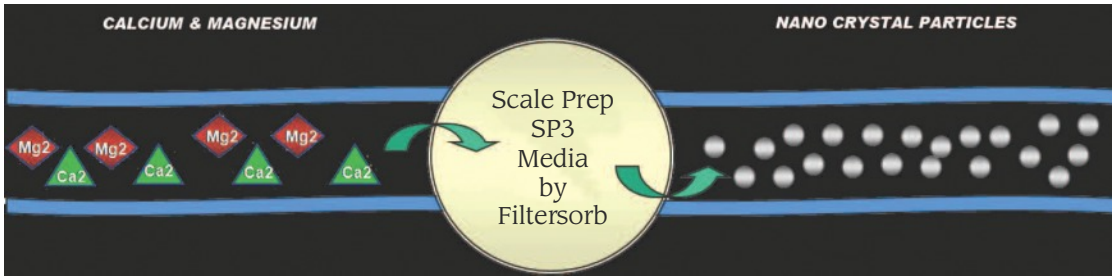
Charger has your solution!

How the Scale Prep system works:

Scale Prep's SP3 Anti-Scale Media was especially developed and manufactured to protect against the formation of scale and remove already existing scale from pipes and heat exchange surfaces.

The Scale Prep's SP3 catalytic media prevents the formation of scale and eliminates existing scale by accelerating the transformation of the calcium and magnesium minerals into harmless "Nano" particles. As the nano particles flow through plumbing systems, they do not attach to pipes, fixtures, valves, or heating elements; the result is 99% scale prevention and removal!

Scale Prep's SP3 is successfully used in a number of applications for both residential and commercial usage. Virtually maintenance free, chemical free, and salt free, Scale Prep's SP3 media water conditioners are a cost effective alternative where benefits and overall performance surpasses our competitors.



Scale Prep's unique Spider Flexible Hub and Lateral system assures proper flow pattern and rates.

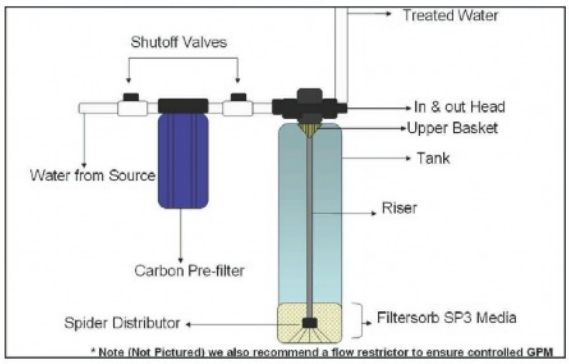
Scale Prep's Full Flow Filter Valve with Fill Port and Bypass Valve assures optimum filtration.

The Scale Prep system, environmentally-friendly scale control:

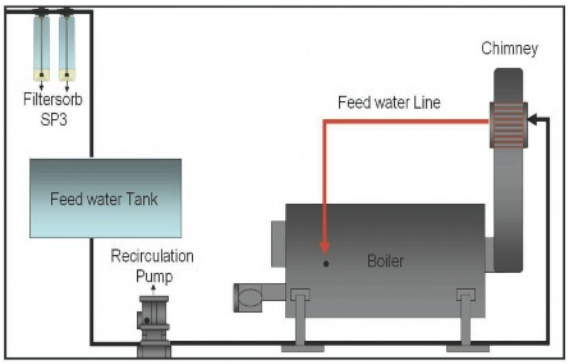
- **Commercial and Residential applications**
- **Preserves beneficial minerals**
- **Does not release harmful minerals or chemicals into our water system**
- **Maintenance free**
- **No electricity**
- **No wasted water**
- **Chemical free**
- **Eliminates existing scale**
- **Reduces soap and chemical consumption by 30-40%**
- **Salt free**
- **Reduces energy consumption**

CHARGER
Water Treatment Products

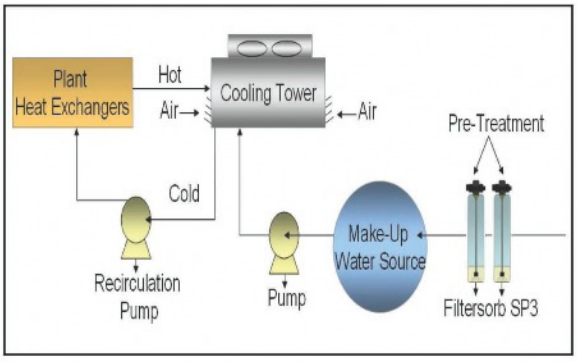
Residential Application



Hot Water Boiler Application



Cooling Tower Application



The above diagrams are examples only & technical support should be contacted for further assistance in the development of an application

- **Scale Prep System** must be the last form of water treatment equipment installed with the exception of an RO unit or POU filter.
- Recommended to use a carbon pre-filter for municipal applications (carbon pre-filters reduces the negative effects of high chlorine on the media and lowest levels of iron .4ppm. ***Note: You must change out your carbon filter to keep proper flow rates).
- Recommended that you soak the media for 60-120 minutes before start up. This assures that the media is saturated with water and will not accumulate at the top the housing when filled with water.
- Do not apply phosphates or any other anti-scalents either before or after the Scale Prep System.
- **Scale Prep Systems** are only partly filled with media; systems must have an adequate freeboard.
- **Scale Prep Systems** must use a Spider Flexible Hub and Lateral to ensure proper fluidization. (For larger tanks, use a hub and lateral with a garnet underbed.
- **Scale Prep System** operates in the UP-FLOW mode ONLY!!!! The tank connections are normally opposite from the standard down flow configuration.
- Recommended to use a flow restrictor that is sized to the proper tank and water flow.

Available from: