



# CHARGER

Water Treatment Products



## ScalePrep

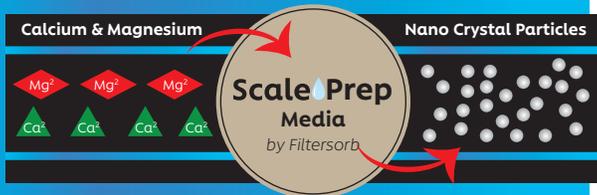
Scale Prevention/Reduction System

The environmentally-friendly answer  
to a world of scale.

# The Charger ScalePrep system



## WATER TREATMENT SYSTEMS



### 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.

### 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
- Chemical free
- Eliminates existing scale
- Reduces soap and chemical consumption by 30-40%
- Salt free
- Reduces energy consumption



#### Unique Spider Flexible Hub and Lateral System

Assures proper flow patterns and rates.



#### Full Flow Filter Valve with Filter and Bypass Valve

Assures optimum filtration.



SCALE PREP  
SYSTEM

Your **Charger** Water  
Treatment Dealer:

# Calcium SCALE Basics

## How does calcium get into the water?

Much of our drinking water comes from ground water, originating as precipitation and falling to earth in the form of rain or snow. This water seeps into the ground, filling the open spaces beneath the surface. As the rain or snow passes through the atmosphere it is enriched with carbon dioxide (CO<sup>2</sup>) while combining with H<sub>2</sub>O to form a solvent of Calcium known as Carbonic Acid (H<sub>2</sub>CO<sup>3</sup>). As this moisture seeps into the ground, the Carbonic Acid extracts calcium from the earth's calcium-rich stone, forming Hydrogen Carbonate (Ca(HCO<sup>3</sup>)<sup>2</sup>). As this extraction process ends, the water is saturated with calcium and carbonic acid, forming a carbonic acid/calcium equilibrium. The amount of calcium in our water can be high or low, depending on how much calcium is drawn into the water.



## How does calcium scale develop in pipes and on hardware?

Calcium scale is a hard, thick coating of calcium carbonate (CaCO<sup>3</sup>) that forms on heating elements, in pipes, plumbing fixtures, water using appliances and RO systems. As calcium-rich water enters the home, the carbonic acid/calcium equilibrium is interrupted within the pipes, plumbing fixtures, water heaters, appliances or water using devices. Because the Hydrogen Carbonate (Ca(HCO<sup>3</sup>)<sup>2</sup>) is a weak chemical compound, increases in temperature or water movement will cause the compound to breakdown, causing parts of the Calcium (Ca<sup>2</sup>), Magnesium (Mg<sup>2</sup>) and Bicarbonate (HCO<sup>3</sup>) to attach to the surfaces of heating elements, the inside of pipes, water heaters, plumbing fixtures and water using devices. Over time the scale coating continually thickens and is very difficult and costly to remove.



*The negative effect of calcium is the scale it creates in or on pipe surfaces, water heaters, plumbing fixtures, heating elements, R/O systems and water using devices. The scale leads to higher energy, operating and maintenance costs for ice machines, coffee machines, reverse osmosis equipment, water heaters and other water using equipment. 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.

### POLYPHOSPHATE:

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

### MAGNETIC & 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.

### 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.

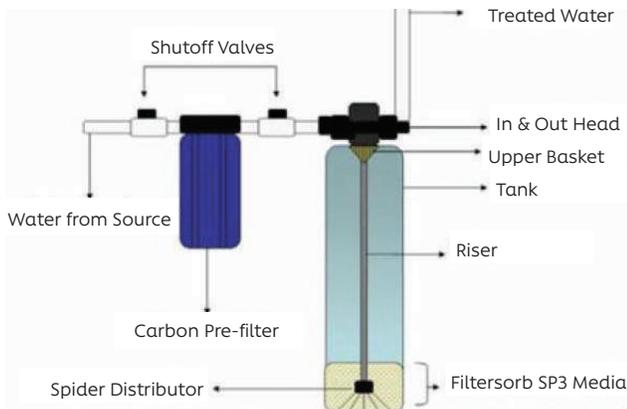
## ScalePrep Operating Parameters

Temperature Range	41°F to 149°F
PH Range	6.0 to 9.0
Chlorine	No greater than 3 ppm
Iron	No greater than .4 ppm
Hydrogen Peroxide	No greater than .5 ppm
Manganese	No greater than 0.05 ppm
Oil	Must be removed prior to use with Filtersorb SP3
Hydrogen Sulfide	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 specs)
General Life Span of Media	5 years

## ScalePrep

### Installation & Application

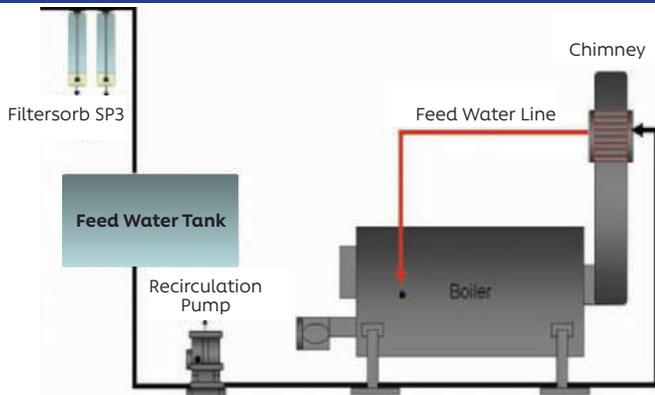
#### Residential Application



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 .4 ppm. \*\*\*Note: You must change out your carbon filter to keep proper flow rates).

#### Hot Water Boiler Application

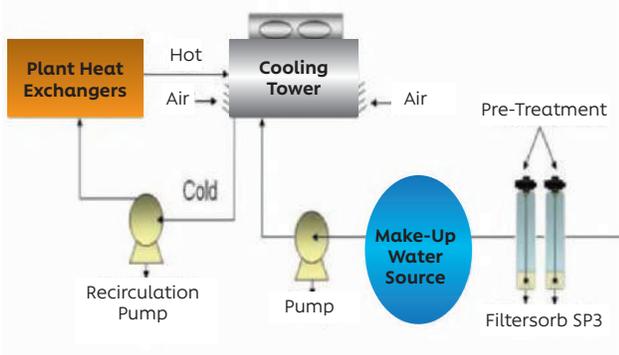


Recommended that you soak the media for 60-120 minutes before start up. This assures that the media is saturated with water and will not accumulate at the top of the housing when filled with water.

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.

#### Cooling Tower Application



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.