Advantages

• No salt required
• No backwashing required
• No regeneration cycle required
• No increase in sodium content in water
• Removes the previous scales of plumbing
• Catalytic process converts Ca and Mg into harmless micro crystals
• Maintenance free. No extra cost incurred.
• No chemicals required for disinfection
• No electrical connections required
• No drain connections required
• No control valves required
• Very easy to install
• Great savings against conventional salt based water softeners
• Provide the best quality healthy water without the addition of Sodium or Phosphates

Features

• 3 – 5 years media life
• Nucleation Assisted Crystallization (NAC)
• Best Quality Drinking Water

Green Technology!
WHAT IS FILTERSORB® SP3?

FILTERSORB®SP3 is the result of extensive research work along with its undisputable success in the market, worldwide since 2005.

Watch®’s core motivation for developing this product was to find an alternative to conventional ion exchange based water softeners, reverse osmosis or other chemical based systems that prevent scale.

Recent restrictions placed upon the above mentioned technology lead to an environment friendly, cost effective solution for hard water, Watch®’s FILTERSORB®SP3. FILTERSORB®SP3 completely takes care of the primary cause of scale forming cations viz. Ca²⁺ and Mg²⁺.

Working Principle

When the hard water under goes nucleation in the pressure vessel, the calcium bicarbonate \( \text{Ca} (\text{HCO}_3)_{2} \) is transformed into aragonite form of calcium carbonate \( \text{CaCO}_3 \) crystals. These crystals are formed through decomposition and crystallization process, forming very stable harmless crystals.

The following equation describes the reaction that occurs inside the pressure vessel when flow over grains of nucleation.

\[
\text{Ca} (\text{HCO}_3)_{2} \rightarrow \text{CaCO}_3 + \text{CO}_2 + \text{H}_2\text{O}
\]

The name fragment “SP [Scale Prevention] 3” is to indicate this unique transformation of water hardness \( \text{Ca} (\text{HCO}_3)_{2} \) into 3 components viz.

1. \( \text{CaCO}_3 \) (micro-crystals)
2. \( \text{CO}_2 \) (colloid) and
3. \( \text{H}_2\text{O} \) (pure)

In the pressure vessel, the equilibrium of carbonate species in water is changed, assisted by the driving force of stable crystal formation and therefore the reaction is pushed to the right \( \rightarrow \). With this technology, as long as \( \text{CO}_2 \) is being removed the soluble \( \text{Ca} (\text{HCO}_3)_{2} \) converts into insoluble calcium carbonate \( \text{CaCO}_3 \) crystals.

Lifespan of the Media

The effective average lifespan of FILTERSORB® SP3 is 3 to 5 years, depending on the feed water conditions.

Standard packing and shipping mass

FILTERSORB® SP3 is packed in 60 Liter Drums.

<table>
<thead>
<tr>
<th>Drum(s) on a pallet</th>
<th>L x W x H (cm)</th>
<th>Shipping Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60 x 40 x 80</td>
<td>50 kg 60 liters</td>
</tr>
<tr>
<td>4</td>
<td>80 x 60 x 80</td>
<td>200 kg 4x60 liters</td>
</tr>
<tr>
<td>6</td>
<td>120 x 80 x 80</td>
<td>300 kg 6x60 liters</td>
</tr>
<tr>
<td>9</td>
<td>120 x 120 x 80</td>
<td>450 kg 9x60 liters</td>
</tr>
<tr>
<td>18</td>
<td>120 x 120 x 145</td>
<td>900 kg 18x60 liters</td>
</tr>
</tbody>
</table>

Glass grains crystallization sites provide increased nucleation sites for the formation of submicron sized \( \text{CaCO}_3 \) crystals. Hence this amazing process is called NUCLEATION ASSISTED CRYSTALLIZATION or NAC in short.

Features:

- No regeneration, No salt, No backwash, No disposal, No electricity is required. Long service life.
- The calcium carbonate crystals grow steadily. They are very stable and cannot dissolve [incapable of forming scale] in the water.
- Glass grains crystallization sites provide increased nucleation sites for the formation of submicron sized \( \text{CaCO}_3 \) crystals. Hence this amazing process is called NUCLEATION ASSISTED CRYSTALLIZATION or NAC in short.
Applications

FILTERSORB® SP3 has proven itself in a variety of applications as an alternative to ion exchange softening or other conventional water treatment methods. The maintenance-free characteristics make it especially suited for Foodservice and Commercial applications where equipment maintenance is often overlooked. FILTERSORB® SP3 treated water preserves the essential minerals Calcium and Magnesium, making the water most healthiest drink available.

Home appliances: Faucets, water pipes, shower heads, shower cabins, toilets. All beverage systems, kitchen machines, dish washers, ice cubes, compact washers and dryers.

Major appliances: Central heating, air conditioners, water heaters, air humidifiers, coffee and tea makers, solar heating systems, water coolers.

Boilers: Hot water boilers, central heating boilers, combo boilers, catering water boilers, boilers and pool heaters, commercial water heaters, industrial hot water boilers.

Cooling towers: Closed circuit cooling towers, open circuit cooling towers, concrete cooling towers, cross flow cooling towers.

Industrial appliances: Winery, Car Washing, Diary Processing, Food & Beverages, Injection Moulding, Irrigation, Nurseries, Reverse Osmosis pre-treatment etc.

Other applications:

- Irrigation
- Swimming pools and SPA
- Dairy Processing
- Winery and Beverages
- Planting and Gardening
- Automobile Washing
- Hotel, Restaurants and Institutions
- Coffee and Tea-machines
- Vending appliances
- and many more...

Note: Do not use where water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit. System must be maintained according to manufacturer's instructions. Pre-treatment for sediment, Iron, Hydrogen Sulfide, Manganese, hydrocarbons and Copper may be required depending on conditions. Install systems in new facilities with copper pipe after six weeks of water use.

Physical Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>SI</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White/ opaque solid granules</td>
<td></td>
</tr>
<tr>
<td>Composition</td>
<td>modified ceramic beads</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>780 kg/m³</td>
<td>48.7 lb/ft³</td>
</tr>
<tr>
<td>Particle size</td>
<td>0.55 – 0.75 mm</td>
<td></td>
</tr>
<tr>
<td>Mesh size</td>
<td>20 x 35</td>
<td></td>
</tr>
<tr>
<td>Moisture content</td>
<td>10 – 25 %</td>
<td></td>
</tr>
</tbody>
</table>

Operational parameters & water impurities

- Flow direction: Up Flow
- Recommended operating time: SI 5 – 80 °C, US 41 – 176 °F
- pH range: 6.5 – 9.5
- Hardness, max.: SI 1338 ppm (mg/l), US 75 gpg
- Salinity, max.: 35000 ppm (mg/l)
- Iron, max.: 0.5 ppm (mg/l)
- Manganese, max.: 0.05 ppm (mg/l)
- Free chlorine, max.: 3 ppm (mg/l)
- Copper, max.: 1.3 ppm (mg/l)
- Oil: free
- Hydrogen sulfide: free

* FILTERSORB® SP3 is able to remove Iron from water with very high efficiency.
To know and learn more about this huge potential of Filtersorb® SP3 please contact us:

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