

# Scale Hardness Protection with Template-Assisted Crystallization

“The Superior Water Softener Alternative”

## Introduction

For years, water softeners have been virtually the only means of treating hard water. Other alternatives including magnets, electromagnets, RF devices and catalysts have been available but few have proven to be effective.

## Technology

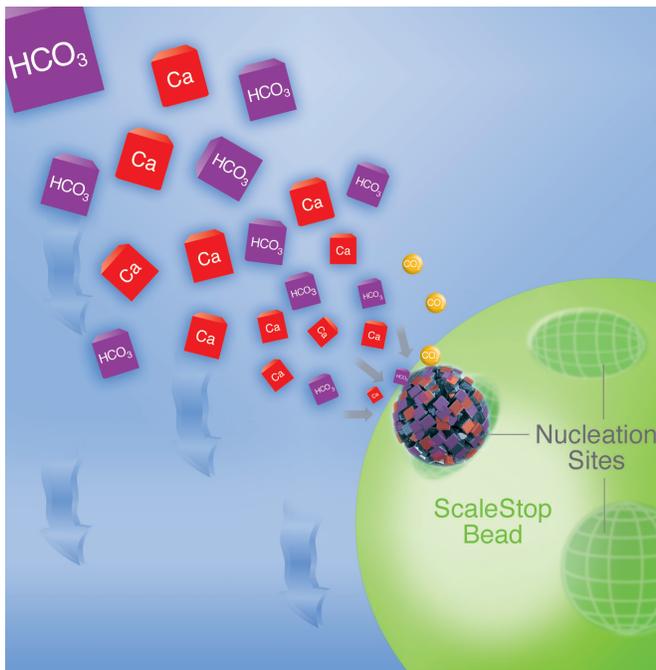
A recent development, Template-Assisted Crystallization (TAC) has produced the first effective chemical-free scale prevention method. Based on TAC technology, hardness minerals are converted into microscopic crystals.

## Tested and Proven

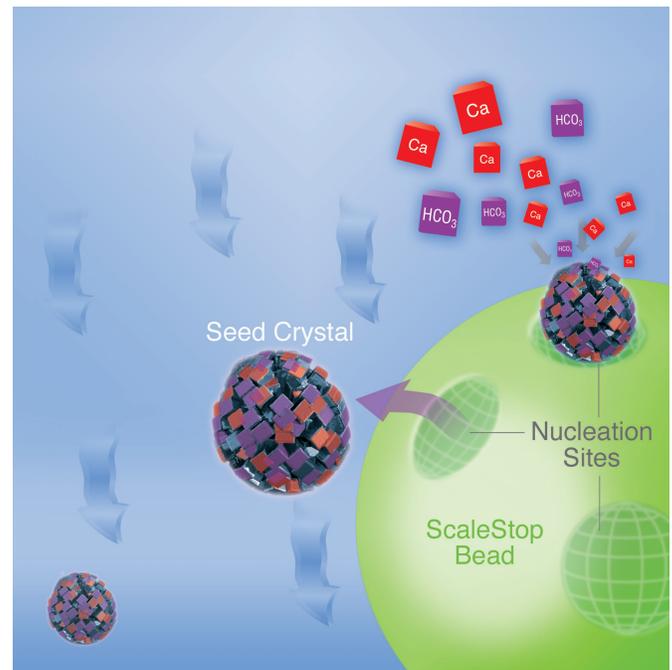
Tested by an independent laboratory against the international protocol for scale prevention, TAC achieved a 99.6% effectiveness rating – the only technology to do so and far more effective than any other water softener alternative. Proven in over 6 years of successful use in homes and businesses.

## Features

- Unique TAC technology induces the formation of microscopic calcium crystals to effectively prevent scale buildup
- Extremely efficient—5 second contact time regardless of hardness level (conventional Ion Exchange resin requires 90 seconds)
- Long lasting media (not consumed by the reactions)
- No salt or other regenerates required
- No water waste from backwashing
- No brine discharge (can be used in areas where conventional water softeners are banned)
- No control valve or electricity required
- Media can be used in both conventional mineral tanks or POU cartridge form
- Media operates in up flow condition



Atomic level “templates” (nucleation sites) on the surface of small, specially treated polymer spheres convert dissolved hardness into microscopic crystals.



Once the crystals grow to a certain size they are released from the bead. The crystals are relatively insoluble, effectively isolating the  $\text{CaCO}_3$  from the water chemistry and anything the water contacts.

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## Applications

TAC 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. TAC is a great alternative for residential use, especially in areas with brine discharge restrictions or where brackish water makes it impossible to operate a conventional softener.

## Foodservice

- Coffee & Tea Brewers
- Reverse Osmosis (Pre-Treatment)
- Distillers
- Misting Systems

## Commercial/Industrial

- Car Washes
- Laundries
- Evaporative Coolers (single-pass)
- Hotels, Hospitals, Apartments

## Residential

- Laundry
- Dishwasher
- Water Heater

## Benefits

- Scale protection for boilers, water heaters, dishwashers and more
- Beneficial minerals are retained in drinking water
- No salt, chemicals or electricity required
- No backwash water waste
- Long lasting media (not consumed by the reactions)
- Can remove existing scale from pipes, boilers, water heaters, etc.
- Environmentally friendly-great fit for corporate “Green” programs or initiatives



## Regulatory Approvals

- NSF/ANSI Standard 42

## Water Chemistry & Limitations

- pH 6.5 to 8.5
- Hardness, max. 75 grains (1300 ppm CaCO<sub>3</sub>)
- Temperature 41 to 140° F (5 to 60° C)
- Chlorine < 3 ppm
- Iron 0.3 mg/l
- Manganese 0.05 mg/l
- Copper 1.3 mg/l
- Oil & H<sub>2</sub>S Remove prior to TAC

## Standard Flow Rates

- 1 GPM – 10" – 525,000 Gallons Capacity
- 2 GPM – 20" – 1,050,000 Gallons Capacity
- 4 GPM – 20" – 2,100,000 Gallons Capacity

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Antunes delivers a complete range of countertop cooking equipment and water filtration solutions to foodservice operations around the world. Learn more about Antunes and its products at [www.antunes.com](http://www.antunes.com).

**Corporate Headquarters**  
Carol Stream, Illinois  
Phone: (630) 784-1000  
Toll Free: (800) 253-2991  
Fax: (630) 784-1650

**China Facility**  
Suzhou, China  
Phone: 86-512-6841-3637  
Fax: 86-512-6841-3907