

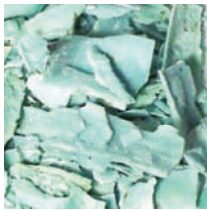
# GOT SCALE? GET THE FACTS!

“Scale” is anything and everything solid that is deposited onto surfaces that come into contact with water. The most important and common type is limescale, but other types

include hydroxide scale, silica scale, even phosphate scale, plus ordinary dirt, rust, etc. that settle as sediment and get incorporated into other scale types.

**FACT: Water filters alone do not remove scale. Water filters with scale inhibitors treat water so that scale does not form in water-using equipment.**

## DIFFERENT KINDS OF SCALE



**Limescale** is limestone that is first dissolved from the ground and then caused to re-form later in water-using equipment when the water chemistry changes. It is mostly calcium carbonate ( $\text{CaCO}_3$ ), but in many places magnesium carbonate may account for up to 1/3 of the total.

The changes that cause limescale to precipitate are:

- pH increase (a pH of 8 is ten times more scale forming than a pH of 7)
- high temperature
- any increase in concentration of hardness, TDS, and/or alkalinity



**Hydroxide Scale** is a fluffy, cloud-like “floc” that forms around ions of certain metals at high pH and then settles into a gooey sludge that sometimes acts like a cement. Examples are iron hydroxide floc and aluminum hydroxide floc.



**Silica Scale** is essentially glass, and it forms wherever soluble silica levels above about 15 ppm encounter a heat transfer surface, such as is found in a coffee brewer.



**Phosphate Scale** occurs only if polyphosphate treatment is flawed. If the dosage is excessive, calcium polyphosphate may precipitate. If the polyphosphate has been degraded

to ortho- (single) phosphate by excessive storage temperature, ordinary calcium phosphate can precipitate and form scale.

## TREATING SCALE

Since scale is different everywhere, low cost limescale inhibition (which is a science, though not an exact science) can be effective at preventing scale buildup. But, depending upon water conditions, alternative treatment methods may be necessary. Effective treatments include:

**Polyphosphate treatment** adds low levels of polyphosphate (0.5 to 10 ppm) to the water. Polyphosphates:

1. Interfere directly with the combining of hardness and alkalinity – they literally get in the way.
2. Cause any floating particles to repel one another and not to agglomerate or deposit as scale and sludge.
3. Are foodgrade and tasteless.

**Fine filtration**, which removes most of the smaller particles that serve as “nuclei” that initiate crystallization, combined with small levels of polyphosphates can reduce scaling by up to 75%.

**KDF® Media** alters insoluble calcium/magnesium crystals found in untreated water into relatively small, evenly-shaped, rounded grains and rods that form a powdery compound that does not easily adhere to equipment surfaces. KDF redox media are high-purity copper-zinc formulations that contain no chemical additives that may alter water quality.

## PENTAIR® EVERPURE® SCALE SOLUTIONS

Pentair Everpure offers the most combinations of different limescale inhibitors and fine filtration solutions available:

CARTRIDGE MODEL	PHOSPHATE INHIBITION
OCS <sup>2</sup> & BH <sup>2</sup>	Non-metered polyphosphate balls; submicron filtration
4H	Fine powered polyphosphate; submicron filtration
2CB-GW	Increased amount of polyphosphate crystals; 5-micron filtration
2CB5-S & 4CB5-S	Non-metered polyphosphate feed; 5-micron filtration
ScaleSticK®	Metered feed of Hydroblend™; a blend of different phosphates
CARTRIDGE MODEL	KDF INHIBITION
2K-Plus & 4K-Plus	KDF scale inhibitor; submicron filtration
2CB5-K & 4CB5-K	KDF scale Inhibitor; 5-micron filtration
CARTRIDGE MODEL	SOFTENING
7SO	Quick-change softener
S0-10, S0-20 & S0-24	Drop-in softeners
IN-15-CR	In-line softener with carbon for T&O reduction
ESO 6 & 7	Softened/buffered/filtered water
7SO	Quick-change softener
CARTRIDGE MODEL	DECARBONIZATION
Claris™ S, M, L, XL, XXL	Duoblend™ bypass valve technology



EVERPURE®

# SCALE IS DIFFERENT EVERYWHERE!

**KNOW MORE ABOUT YOUR SCALE TO FIND THE RIGHT TREATMENT.**

The appearance of scale varies infinitely and depends on the impurities that are present in the water. For example, pure limescale is pure white, but sediment and turbidity due to dust, dirt, and mud may color it. Common contaminants have the following color properties:

RED = Rust

BLUE/GREEN = Copper

WHITE or PALE YELLOW = Oxidized sulfur

BROWNISH/BLACK = Manganese, Iron

**Scale has many different physical attributes:**

Baked-on and hard as marble

Loosely-settled powder or granules

Delicate sponge-work

MIDWEST



Marshall  
Minnesota



Northbrook  
Illinois



Macedonia  
Ohio



Corinth  
Missouri



Corinth  
Missouri



Corinth  
Missouri



Rural  
Missouri



St. Louis  
Missouri



Kansas City  
Missouri



St. Charles  
Missouri



St. Charles  
Missouri



Kansas City  
Missouri



St. Charles  
Missouri



St. Louis  
Missouri

WEST



Los Angeles  
California



EAST



Framingham  
Massachusetts



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SOUTHEAST



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