

Boiler Scale Guide

Scale is a mineral build-up. It creates a hard-coating/layer on internal surfaces of the boiler exposed to the water side.

How scale effects your boiler

Boilers have tubes which act as heat conductors. Scale can collect on the water side of the boiler tubes.

In a boiler tube, the energy from hot combustion gases (heat) is transferred through the tube wall and the scale layer to the water. When heat travels through the scale layer to reach the water, heat is lost. Also, because the combustion gases are prevented from efficiently transferring their energy to the water side, it creates a hotter than usual gas temperature which accelerates tube corrosion.

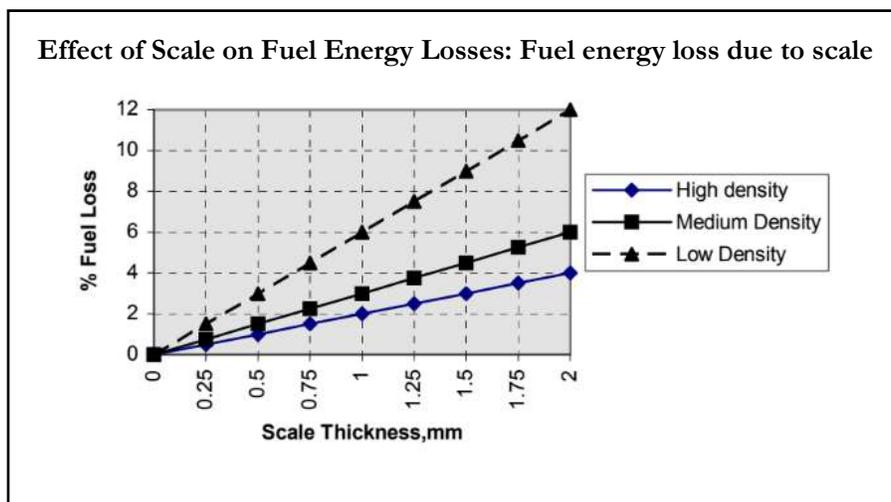
Problems of scaling in a boiler

Most significantly, scaling is a major cause of tube failure. Depending on the BTU rating of your tube, it can cost between \$2,100 to \$4,600¹ to replace the boiler tubes.

- 500K BTU boiler tubes - \$2,100
- 900K BTU boiler tubes - \$3,700
- 1.5 Millon BTU boiler tubes - \$4,600

Scaling also leads to boiler tube corrosion and, again, ultimately having to replace the boiler tubes at a cost of \$2,100-\$4,600.

Scale acts as a barrier to heat transfer which increases energy consumption and costs.



Bottom line: Scaling in your boiler can be very costly. The best and easiest way to maintain your boiler is to have a boiler water filter with scale inhibitor.

¹ These costs are as of January 31, 2018 based on quotes from leading boiler service companies in Southern California for parts, bundle tubes, and installation.

Clean and descale your boiler + use a boiler water filter with scale inhibitor

It's important to point out that our boiler water filter will remove existing scale deposits. Be sure to clean and descale both the fire (outside) and water (inside) side of your boiler to experience the full benefits of a boiler water filter. It is essential to clean and descale the outside and inside of the boiler tube at the same time otherwise it can cause thermal stress on the boiler tubes and ultimately having to replace them. The fire side may be seemingly easier to get to/clean but it's bad practice to frequently clean the fire side and totally ignore scale built up at the water side.

Cleaning just the fire side may reduce fuel consumption but cause the boiler tubes to be needed to be replaced more frequently. Tube corrosion is also accelerated at high temperatures. Any fuel savings are lost in the cost have retubing or repairing water walks damaged by overheating. Always have a descaling practice and feedwater treatment in place.