

WATER

& FOODSERVICE EQUIPMENT

If you heat it,
you should treat it.



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Facts about the benefits of treating the water used in foodservice equipment.



There are many types and sizes of food service equipment that have water as an active, working ingredient. The effect that water has on boilers is more critical because that water is heated.

All waters have some mineral content which is picked up and dissolved as the water contacts earth and rock above and below the ground's surface. When these dissolved solids are heated, they are changed and deposited as lime and sediment inside the boiler. Most water is naturally corrosive and becomes more aggressive at high temperatures which corrodes the boiler surfaces. This corrosion causes rust that hinders water circulation and heat transfer.

Certain problems are common to all boilers regardless of their brand. The major contaminants and corresponding recommended feed water qualities are:

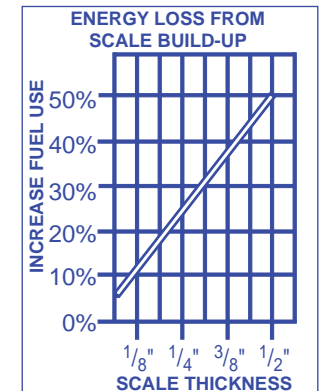
Total Hardness	2.0 GPG
pH	7.0-7.5 pH
Iron (Decrease heat transfer)	0.2 PPM
Silica (Acts as insulator)	30.0 PPM
Alkalinity (Can corrode condensate lines)	10.0 GPG
Total Dissolved Solids (TDS)	20.0 GPG

Total Hardness - Total hardness is the sum of calcium and magnesium content of the water. When hard water is heated, the calcium combines with sulfates or carbonates to form sulfate or carbonate scale. This scale forms a continuous insulating layer on the hot surface of the boiler which reduces boiler efficiency and increases heating energy costs.

Scale and Corrosion - Scale and corrosion are the two major enemies of any boiler system. Scale build up wastes energy while corrosion causes down time for repairs. The following chart shows how drastically scale increases fuel costs. As little as 1/8" of scale adds more than 16% to fuel costs.

pH - Water that has a pH of less than 7 is acid. Acidic water contains carbon dioxide which dissolves to form carbonic acid or mineral acid. Acid water will corrode metal components. When oxygen is present, the corrosive effect is increased. Acidic water may also prevent iron from being filtered out.

Iron - Small amounts of iron are frequently found in water because of the large amount of iron present in soil. Over 5% of the earth's crust is iron. Iron in water alters the flavor of beverages like coffee or tea. It also clogs and corrodes passages. When water containing dissolved iron compound is allowed to stand, the iron combines with oxygen to form rust.



Silica - A crystalline compound such as sand.

Alkalinity - Any base or hydroxide such as soda or potash that is soluble in water and can be neutralized acids. Levels above 10 grains per gallon can corrode condensate lines.

Total Dissolved Solids - Total dissolved solids are the level of dissolved minerals in water. High levels of TDS, above 20 grains per gallon, contribute to poor taste, scaling and spotting.

Water Treatment

First, have your water analyzed to determine its quality. Water can be analyzed by any independent laboratory. They can be found in the yellow pages of your telephone directory under water or water treatment.

After your water has been analyzed, contact a water treatment company and ask for recommendations for water treatment systems to meet your water volume and equipment needs.



Water Hardness Areas in the United States

Water treatment varies according to your specific needs and the quality of your water. Some of these methods include:

Filter Systems	Remove solids Only
Treatment Systems	Soften water with Chemicals
Reverse Osmosis System	High Pressure filtration through fine membranes



Remember:

- ≈ Proper water treatment eliminates scale, corrosion and down time. It saves on energy and allows the boiler to produce steam in greater volume so the production can be prepared and served more quickly.
- ≈ Unless the customer has proper quality water being fed into their equipment, warranty coverage by most manufacturers will be voided.
- ≈ Because of air pollution, acid rain, industrial and civic waste, water problems across the country are getting worse, not better.
- ≈ In the long term, water treatment saves money, increases customer satisfaction and helps avoid expensive repairs and down time.
- ≈ Lack of treatment can adversely affect equipment warranties.
- ≈ Look into water treatment today-even water that is safe to drink maybe damaging your equipment.

