

# U.S. Bureau of Standards Data on Scale Build-Up

## BACKGROUND MATERIAL

According to the United States Bureau of Standards, the build-up of lime, calcium or scale deposits (terms used interchangeably) requires more fuel to heat water to any given temperature and therefore costs more money to operate. When there is scale build-up, the transfer of heat in heat exchangers, cooling towers and evaporative coolers is also less efficient.

## EXAMPLES

- 1/16th inch of scale build-up requires 15% more fuel to heat water.
- 1/4th inch of scale build-up requires 39% more fuel to heat water.
- 3/8th inch of scale build-up requires 55% more fuel to heat water.
- 1/2 inch of scale build-up requires 75% more fuel to heat water.

According to the United States Bureau of Standards water is graded as follows:

Soft	1 Grain or less
Slightly Soft	>1 to 3.5 Grains
Moderately Soft	>3.5 to 7 Grains
Hard	>7 to 10.5 Grains
Very Hard	>10.5 Grains

## Conversions Chart

Grains of hardness x 17 = \_\_\_\_ Total dissolved solids (TDS)

TDS x .058 = \_\_\_\_ Grains of hardness

Micromhos divided x 1.5 = Parts per million

TDS x 1.5 = \_\_\_\_ Micromhos