

# Filters, Water & Instrumentation, Inc.

## Water Cycles of Concentration



<b>Total Dissolved Solids Table</b>			
Conductivity MS/cm <sup>2</sup>	Resistivity Meg-Ohm/cm <sup>2</sup>	TDS MG/L (CaCO <sub>3</sub> )	TDS GPG
0.056	18.000	0.028	0.002
0.063	16.000	0.031	0.002
0.071	14.000	0.036	0.002
0.083	12.000	0.042	0.002
0.100	10.000	0.050	0.003
0.133	7.500	0.067	0.004
0.200	5.000	0.100	0.006
0.500	2.000	0.250	0.015
1.000	1.000	0.500	0.029
1.333	0.750	0.667	0.039
2.000	0.500	1.000	0.058
4.000	0.250	2.000	0.117
10.000	0.100	5.000	0.292
20.000	0.050	10.000	0.585
40.000	0.025	20.000	1.170
80.000	0.013	40.000	2.339
100.000	0.010	50.000	2.924
200.000	0.005	100.000	5.848
500.000	0.002	250.000	14.620
1000.000	0.001	500.000	29.240
2000.000	0.001	1000.000	58.480
5000.000	0.000	2500.000	146.199
10000.000	0.000	5000.000	292.398

<b>OTHER CONVERSION FACTORS FOR WATER TREATMENT</b>	
1 Cubic Foot = 7.48 US Gallons	1 Liter = 2.2 Pounds
1 Cubic Foot = 28.32 Liters	1 Liter = 61.03 Cubic Inches
1 Cubic Foot = 1728 Cubic Inches	1 Grain per Gallon = 17.1 ppm
1 US Gallon = 3.785 Liters	1 PSI = 2.307 feet of head(water)
1 US Gallon = 8.33 pounds	

### Total Dissolved Solids

One of the most important measures of water quality is the amount of dissolved minerals in the water (Total Dissolved Solids, TDS). TDS is typically measured by a device which quantifies how the water sample conducts an electrical current. All the measurements with the exception of the GPG figures are electrical measurements. The different units are used to make it convenient to express the Total Dissolved Solids values.

The most important thing to remember is that all units measure the same thing and are all done by electrical current conduction. The measuring instrument's internal electronics make the conversions to the unit of measurement shown on the dial.

### Chart Definitions

**Conductivity** is measured in microsiemens per square centimeter (MS/cm<sup>2</sup>). This measurement is used more commonly for untreated city water and often in cooling tower and boiler water conductivity.

**Resistivity** is measured in million ohms per square centimeter (Meg-Ohm/cm<sup>2</sup>). This measurement is used commonly in treated deionized or RO/DI water systems for high purity applications. The reason that resistivity is used is that conductivity at high purity results in low readings which are difficult to discern.

**TDS** measured in milligrams per liter (mg/l) of solution is used to make sense out of all the different measurement units.

**TDS** measured in grains per gallon (GPG) of solution is the old avoirdupois system in grains, ounces, pounds and tons. It is commonly used to measure water hardness and resin capacities in grains per cubic foot of resin.

**FILTERS, WATER & INSTRUMENTATION, INC.**  
 www.FiltersWater.com  
 23 Londonderry Road, Unit 13  
 Londonderry, NH 03053-3314  
 PH 603 434-9577 FX 603 434-2832