



pH of Pure Water

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Industrial Water Purification
(800) CAL-WATER (800) 225-9283

pH of pure water?

What could be so difficult about reading the pH of pure water?

Water that has very few ionic species is said to be low in alkalinity, ionic strength, or have low conductivity/high resistivity, such as distilled or deionized (DI) water.

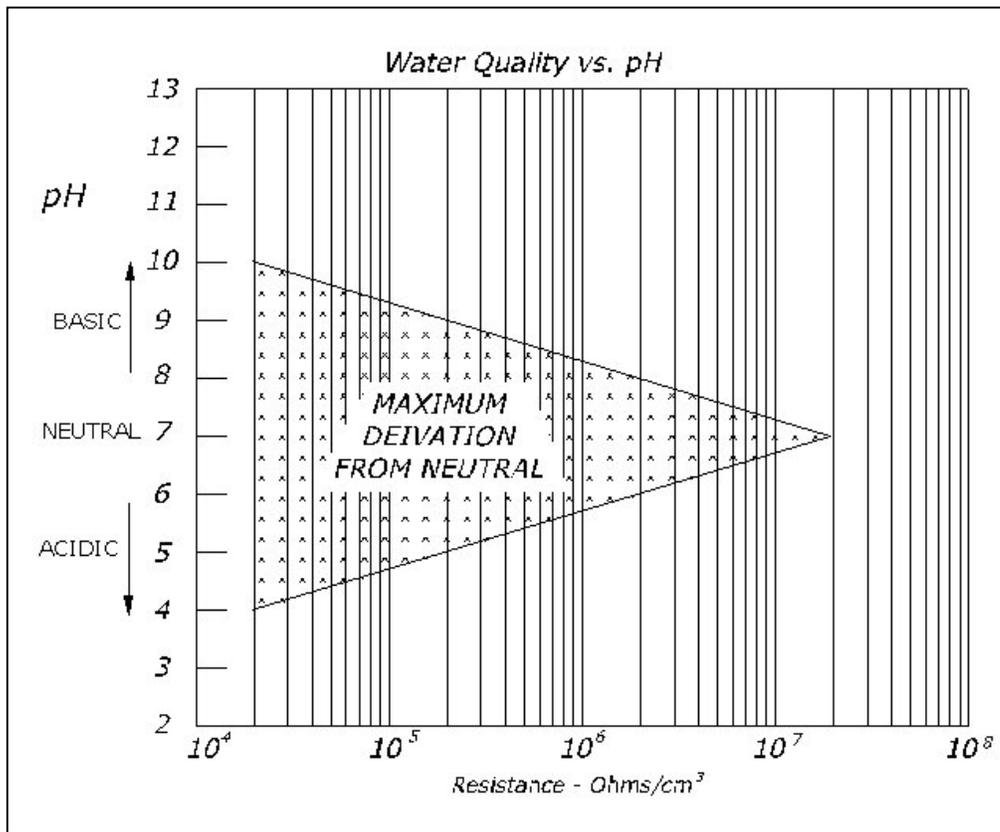
It is common to attain different pH values with new, sealed electrodes that calibrate perfectly in pH buffers when attempting to measure DI water. This is due to the varying junction potentials that develop across the reference junction.

Use these five tips for more effective monitoring of the pH of pure water:

- Measure pH immediately upon sampling. This is done to minimize exposure of the water sample to air. Because high purity water is "Hungry" Water, it seeks to dissolve everything (The Universal Solvent). The absorption of CO₂ out of the air occurs rapidly. In less than 60 seconds the pH can decrease by a unit or more.
- Maintain good testing practices including: using clean glassware; avoiding cross-contamination after calibration by rinsing with DI water; and using only certified calibration standards.
- Temperature compensation is critical to accurate pH measurement. Most modern pH meters are temperature compensated, but their temperature precision should be checked when the pH meter is Calibrated.
- Calibrate pH meter daily at multiple pH calibration points.
- Adding a small amount of reagent grade KCl will increase ionic strength to the sample and improve response time.

The water quality as measured by a resistivity instrument can be an indicator of pH. Since both H⁺ and OH⁻ are excellent electrolytes, The resistance of water can indicate the maximum and minimum pH possible.

The Graph below summarizes the highest and lowest possible pH at a given water quality.



The following water quality conversion chart shows max. / min. pH at high water quality as measured in various terms.

WATER QUALITY CONVERSION CHART

Resistivity Ohms/cm ³ <u>@ 25 C</u>	Conductivity Microseimens (Micromhos/cm ³ .) <u>@ 25 C</u>	Dissolved Solids (as CaCO ₃)			Maximum Possible pH	Minimum Possible pH
		ppm	ppb	GPG		
18,000,000	0.056	0.028	28		7.8	6.2
16,000,000	0.063	0.031	31		7.9	6.1
14,000,000	0.071	0.036	36		7.9	6.1
12,000,000	0.083	0.042	42		8.0	6.0
10,000,000	0.100	0.050	50		8.1	5.9
8,000,000	0.125	0.063	63		8.2	5.8
6,000,000	0.167	0.083	83		8.3	5.7
5,000,000	0.20	0.10	100		8.4	5.6
4,000,000	0.25	0.13	125		8.5	5.5
3,000,000	0.33	0.17	167		8.6	5.4
2,000,000	0.5	0.25	250		8.8	5.2
1,000,000	1	0.5	500		9.1	4.9

For More Information Please Call
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