568 Cooking Vegetables in Water

Sciencefaircenter.com Study Kit

Each water sample is tested for this Set of parameters:

Alkalinity, pH, Free Chlorine, Total Chlorine, Total Dissolved Solids (TDS), Dissolved Metals (Combined Metals Cu+2,Co+2,Zn+2,Cd+2,Ni+2,etc.) (6 tests per Set)

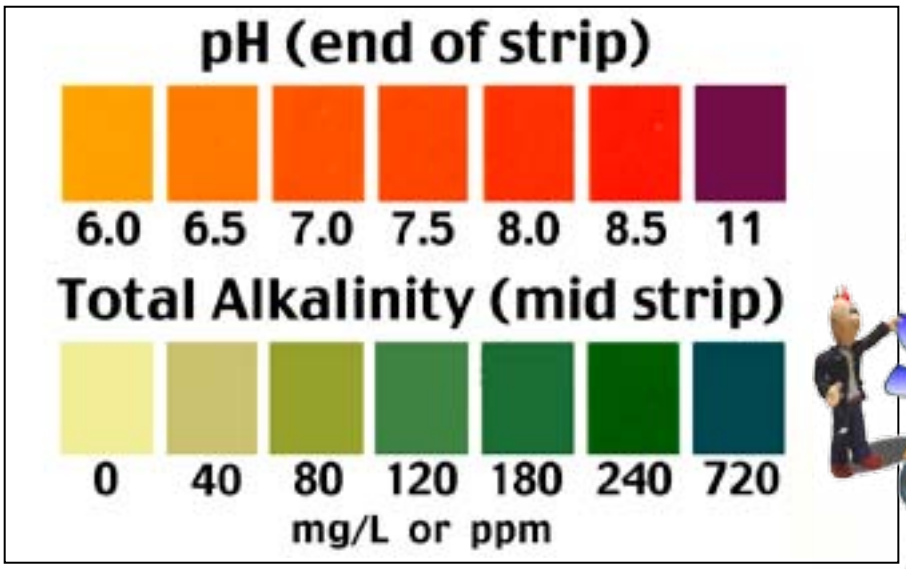
Log onto www.sciencefaircenter.com/documentation.tpl for additional information on this study kit.

Find more water information at **www.sciencefairwater.com** (a web work in progress).

ScienceFairCenter.com
6830 NE Bothell Way #C424
Kenmore, WA 98028

SCIENCEFAIRCENTER.COM

Phone: 206-440-3008
sales@sciencefaircenter.com



#115 pH and TOTAL ALKALINITY of Water

Colorimetric test strips. (2 tests per strip)

pH and Total Alkalinity are two of the most fundamental parameters in drinking water testing as well as a great variety of other applications of water usage. Alkalinity indicates the buffering capacity of natural waters. A water is buffered if the pH does not change greatly by addition of acids or bases.

The most effective buffering action is within the pH range of water from 6.0 to about 8.5. The productivities of water can be correlated with ph, alkalinity and the buffering system.

The color charts for these tests read pH levels and Total Alkalinity in mg/L or ppm.

The Color Comparator Chart test reports levels of:
pH levels of 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 11
Total Alkalinity 0, 40, 80, 120, 180, 240, 720 mg/L or ppm.
Both tests are on the same test strip.

Results are obtained from this test in 25 seconds.

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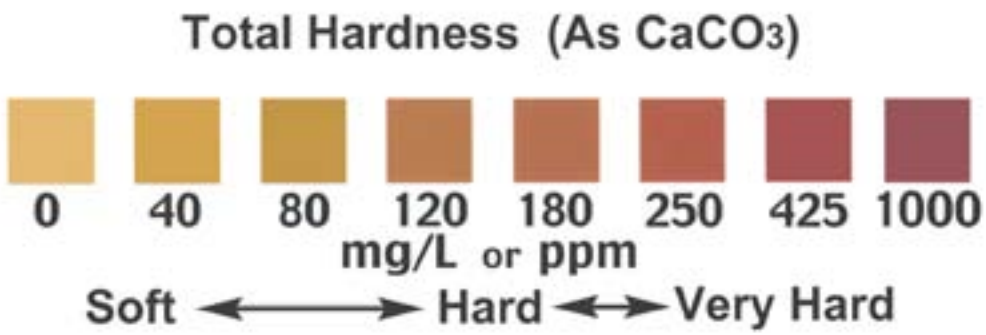

100 TOTAL WATER HARDNESS

Colorimetric test strips. (1 test per strip)

Water Hardness is composed of mostly calcium and magnesium. The water hardness comes from naturally occurring minerals in the local and regional geology being dissolved by water.

Hardness is a key water parameter and its control is important to assure proper water quality. Low Hardness (Soft water) can contribute to corrosive water. High Hardness (Hard water above 400) can lead to clarity and scaling problems. Water softeners are used to reduce Total Hardness of water.

Testing for hardness in tap water is very common and is very quick and easy with these test strips. The Color Comparator Chart for this test allows you to read Total Hardness in mg/L or ppm.

This test reports calcium hardness concentrations in water at 0, 40, 80, 120, 180, 250, 425, 1000 mg/L or ppm.

Results are obtained from this test in about 5 seconds.

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Background Information

Total Hardness (TH) is a measure of the total amount of calcium and magnesium that has naturally leached into the water during its journey through the watershed. In the U.S. water hardness is most often reported as milligrams per liter (mg/L) or parts per million (ppm) as calcium carbonate (CaC03).

It is difficult to produce soap suds in water with high levels of calcium and magnesium ions, hence the term “hardness”.

In addition to reducing the effectiveness of soaps and detergents, hard water may cause an insoluble scale to form on fixtures and on the inside of pipes. Scale formation depends on several factors, one of which is pH.

The EPA does not regulate the levels of hardness in the water supply. There are, however, generally recognized levels that describe the amount of hardness in a water sample:

Hardness as Calclum carbonate (ppm)	**Classification**
0-60	Soft
61-120	Moderately Hard
121-180	Hard
>180	Very Hard

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#130 Total and Free Chlorine in Water

Colorimetric test strips. (2 tests per strip)

Total Chlorine and Free Chlorine test strips are used for testing drinking water from a city water treatment system. This dual test is a convenient way of monitoring Total and Free Chlorine.

This test has been calibrated around EPA drinking water standards. Free Chlorine levels of 4.0 mg/L or greater exceeds Maximum Contaminant Level (MCL) as recommended by EPA.

The Color Comparator Chart for this test reports mg/L or ppm of:
Total Chlorine 0.0, 0.5, 1.0, 2.0, 4.0, 10.0
Free Chlorine 0.0, 0.5, 1.0, 2.0, 4.0, 10.0

Results are obtained from this test in 30 seconds.

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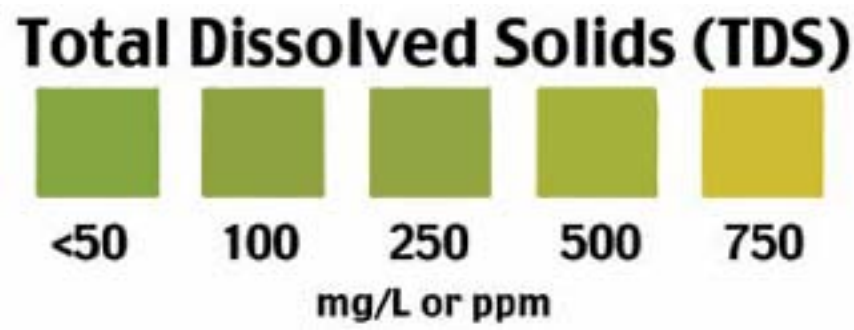

#145 Total Dissolved Solids in Water

Colorimetric test strips. (1 test per strip)

Testing for Total Dissolved Solids (TDS) in tap water is very common and is very quick and easy with these test strips. The EPA Secondary Drinking Water Standard for for TDS is 500mg/L or ppm.

The color chart for this test allows you to read TDS in milligram/L or ppm.

The Color Comparator Chart for this test reports Total Dissolved Solids levels in water at:
0, 50, 100, 250, 500, 750 mg/L or ppm.
(Note: concentration units are milligrams per Liter or parts per million).

Results are obtained from this test in about 30 seconds.

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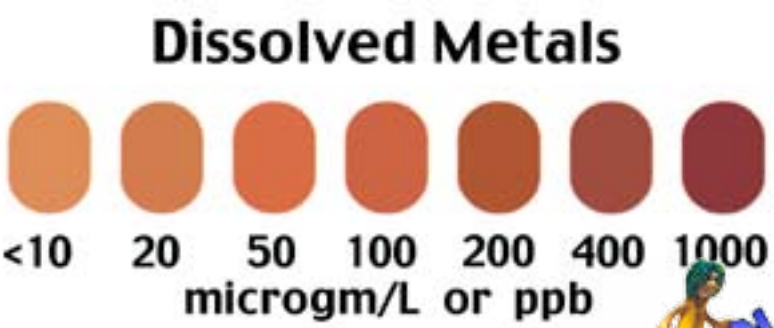

#150 Dissolved Metals in Water

Colorimetric test strips. (1 test per strip)

Testing for Dissolved Metals, also referred to as Trace Metals, in tap water is very common and is very quick and easy with these semiquantitative test strips. Each test strip result indicates the combined presence of heavy metals (Cu+2, Co+2, Zn+2, Cd+2, Ni+2, Pb+2, etc…) in water.

The color chart for this test allows you to read Dissolved Metals in micrograms/L (ugms/L) or parts per billion (ppb). The color chart was calibrated using mixed metals solution.

In the presence of one specific metal, or a high concentration of a specific metal, colors such as purple, red, or brown may appear. In this situation, matching levels based on color intensity may be necessary to reach semiquantative results.

The Color Comparator Chart for this test reports mixed Dissolved Metals levels in water at:
<10, 20, 50, 100, 200, 400, 1000 microgms/L or ppb.
(Note: concentration units are micrograms per Liter or parts per billion: ppb.)

Results are obtained from this test in 2 1/2 minutes.

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