



Plant Growth Nutrients Plus Bacteria Growth Sciencefaircenter.com Study Kit

Each water sample is tested for this Set of parameters:
Phosphate, Nitrate, Nitrite,
Alkalinity and pH, plus
Bacterial Growth Indicator
(6 tests per Set)

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

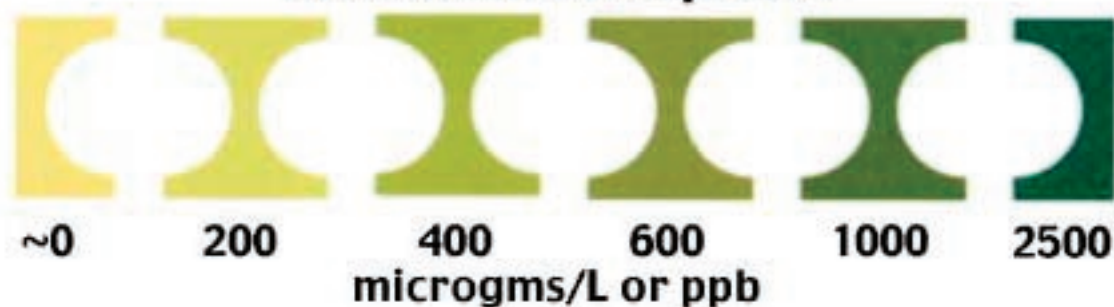
© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

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

SCIENCEFAIRCENTER.COM

Phone: 206-440-3008
Fax: 240-208-7289
sales@sciencefaircenter.com

Dissolved Phosphate



Dissolved Phosphate

Colorimetric test strips

Testing for Dissolved Phosphate in water is common, but usually found in low concentrations. Because of low concentrations, phosphate is involved with regulating biological growth and productivity in natural waters.

The color chart for this test allows you to read Dissolved Phosphate in micrograms/L or ppb.

This test reports Total Dissolved Solids levels in water at:

~0, 200, 400, 600, 1000, 2500 micrograms/L or ppb.

(Note: concentration units are micrograms per Liter or parts per billion).

Results are obtained from this test in about 1 minute.

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

Nitrate plus Nitrite (end pad)

(measured as Nitrogen)



Nitrite

(measured as Nitrogen)



NITRATE / NITRITE NITROGEN

Colorimetric test strips.

Nitrate /Nitrite test strips are for testing water in many applications from drinking water to water used to wash produce.

Nitrates and nitrites occur normally in nature from the breakdown of ammonia in the nitrogen life cycle. Nitrates in nature cause plant and algae growth that may affect the balance of water-based ecosystems.

Nitrate is found in fertilizers and animal waste. Rain tends to wash fertilizers containing nitrates into nearby natural water systems and ground water. Groundwater used as drinking water that contains nitrogen represents a hazard to babies. Many die every year as a result from "Blue Baby Syndrome."

This test reports concentrations compatible with EPA limits of total nitrogen and nitrite nitrogen in water.

The test reports levels of:

NO₃ (as N): 0, 0.5, 2.0, 5, 10, 20, 50 mg/L or ppm;

NO₂ (as N): 0.15, 0.3, 1, 1.5, 3, 10 mg/L or ppm.

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

Conversion Ratio

Nitrate and Nitrite Nitrogen (as N) test results are usually expressed as mg/L or ppm. Sometimes the concentration of Nitrates or Nitrites needs to be expressed as Nitrate (N03) or Nitrite (N02).

To convert nitrate nitrogen concentration to nitrate concentration, multiply the test strip result by 4.4.

EXAMPLE: 5 PPM nitrate nitrogen x 4.4 = 22 mg/L or ppm nitrate.

To convert nitrite nitrogen concentration to nitrite concentration, multiply the test strip result by 3.3.

EXAMPLE: 1.5 PPM nitrite nitrogen x 3.3 = 4.95 mg/L or ppm nitrite.

Background Information

NOTE: Both pads react with Nitrite. The end pad, which has zinc added, converts the Nitrate to Nitrite and, therefore, reacts with both Nitrate and Nitrite. To determine the true Nitrate Nitrogen level you must subtract the Nitrite level from the Nitrate plus Nitrite (end pad) level.

National Primary Drinking Water Regulations set forth by USEPA recommend a Nitrate (measured as Nitrogen) level less than 10 mg/L or ppm and a Nitrite (measured as Nitrogen) level less than 1 mg/L or ppm.

The World Health Organization guideline value is 50 mg/L (acute) for Nitrate (as N03) and 3 mg/L (acute) for Nitrite (as NO2).

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

pH Scales



pH CHECK

Colorimetric test strips

This pH test is very versatile in that it can be used for drinking water testing, food processing, environmental applications or in any other water matrix.

pH is short for "power of Hydrogen." The balance of positively charged and negatively charged hydrogen ions in water determines pH.

Water that has a low pH is acidic or aggressive and can corrode plumbing resulting in metal ions being present in drinking water and damaged fixtures and pipes. Water that has a high pH is basic and will leave scale in pipes and on fixtures.

This test features two test pads both measuring pH at in the same range using different color indicators. This makes color matching easier than with other colorimetric tests.

This test reports water pH at the following levels:
2, 3, 4, 5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 11, 12.

Results are obtained from this test in less than 1 minute.

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

NOTE:

These pH test strips perform optimally in water with a Total Alkalinity above 80 mg/L or ppm. Water highly saturated with dissolved solids or highly buffered samples will give elevated results for pH.

NOTE:

National Secondary Drinking Water Regulations set forth by EPA recommend a pH level between 6.5-8.5

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

Total Alkalinity



TOTAL ALKALINITY

COLORIMETRIC TEST STRIPS

Total Alkalinity is a fundamental parameter in water testing. Alkalinity indicates the buffering capacity of natural waters. A water is said to be buffered if the pH is not changed greatly by addition of acids or bases. The most effective buffering action is within the pH range of water from near 6.0 to about 8.5.

Most natural waters are buffered by some extent by reactions which involve dissolved carbon dioxide CO₂. It forms an indispensable reservoir of carbon for photosynthesis. Thus, the productivities of water can be correlated with alkalinity and the buffering system.

The color chart for this test allows you to read total alkalinity in mg/L or ppm.

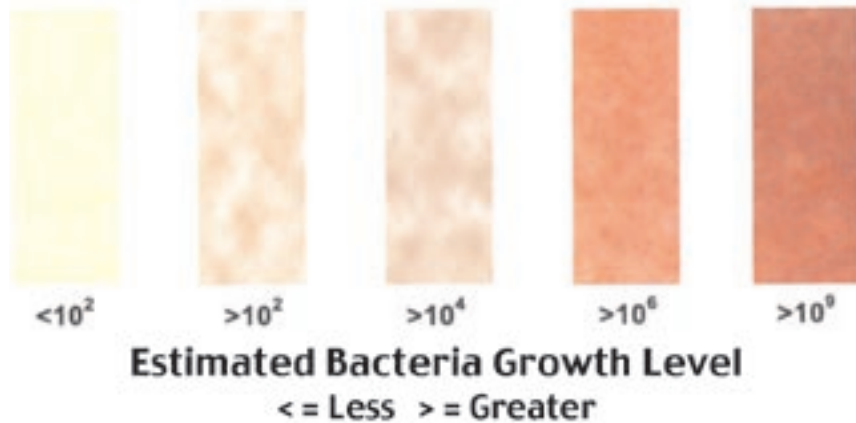
This test reports total alkalinity concentrations in water at 0, 40, 80, 120, 180 and 240 mg/L or ppm.

Results are obtained from this test 30 seconds.

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.

Bacteria Growth Check

fastidious aerobic bacteria in water



BACTERIA GROWTH CHECK

Colorimetric Test Strips

Bacteria Growth Check is a test strip that detects any fastidious (active) bacteria. This test could be used in a variety of applications, however it is not specific for any particular type of bacteria.

You can dip these strips in water or swab surfaces with them. The Bacteria test procedure then requires you to return the test strip into a clear plastic bag for incubation. After 24 to 48 hours of room temperature incubation, any fastidious bacteria on the test pad will multiply and turn the test pad pink to red. The darker and more consistent the test pad, the more bacteria that are present.

Bacteria Growth Check tests only a small water sample and requires a significant quantity of bacteria to show a change on the test pad.

© Copyright 2004 and 2005 including all related website content on www.sciencefaircenter.com - all rights reserved. Gordon Snyder & Consultants, Inc.