



RAINBOW™ PRO-11 MINI LAB POOL OR SPA PROFESSIONAL TEST LAB

PERFORM 11 ACCURATE TESTS

DIRECTIONS: Never let reagents remain in test vial. Clean and rinse after each test. Hold bottles vertically for proper drop size. Take water samples from a depth of 18" (away from return lines). Always place cap on test cell before mixing. Test tablets should be white. Do not touch tablets. False reading may result. More detailed information in booklet.

DPD #1 FREE CHLORINE TEST*

(Ideal range 1.0 - 1.5 ppm)

1. Fill CL test cell to line with water.
2. Add one #1 DPD tablet.
3. Place cap on cell and invert vial several times to dissolve (15 to 35 seconds).
4. Compare color in cell to CL color standards.
5. Note the reading and save sample for Total and Combined test.

DPD #3 TOTAL AND COMBINED CHLORINE TEST

1. Add one #3 DPD tablet to above test.
2. Place cap on cell and invert vial several times.
3. If color darkens, chloramines are present. Compare color in cell to CL color standards.
4. Subtract ppm of Free chlorine from ppm of Total chlorine to obtain ppm of Combined chlorine.
5. A difference of more than 0.2 ppm may indicate a need for superchlorination.

Pentair Water Pool and Spa Inc. • Sanford, NC • Moorpark, CA • Chino, CA
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CHLORINE - BROMINE - IODINE CONVERSION CHART

CHLORINE READING	BROMINE EQUIVALENT	IODINE EQUIVALENT
0.5	1.1	1.8
1.0	2.3	3.6
1.5	3.4	5.3
2.0	4.5	7.1
5.0	11.0	17.8
10.0	22.0	35.6

* Test #1 can be used for Bromine and Iodine measurement.

BROMINE: Levels are obtained by multiplying the reading indicated on the Chlorine scale times 2.25.

IODINE: Levels are obtained by multiplying the reading indicated on the Chlorine scale times 3.57

NOTE: If your Chlorine reading is above 3.0 or Bromine is above 6.0 you may obtain false pH Test reading. Lower Chlorine or Bromine first before testing for pH and Total Alkalinity.

pH TEST (Ideal pH 7.4 - 7.6 ppm)

1. Fill large vial to solid line.
2. Add 1 drop solution #4 (2 drops if chlorine test is above 1.5 ppm or Bromine above 3.5 ppm) and mix by swirling.
3. Add 5 drops solution #2 and mix by swirling and compare test to pH color standards.
4. If reading is above 7.2, perform Alkali Demand and Test #3B using this same water sample. If reading is above 7.8 perform Acid Demand test #3 using this same water sample. Test and adjust total alkalinity (if needed) before adjusting pH.

ACID DEMAND TEST (If pH is above 7.8)

1. Add solution #3 one drop at a time, counting drops, swirling between drops, until color matches 7.6 to pH color standards.
2. Refer to Acid Demand Chart for proper amount of acid to be added to pool or spa.

ALKALI DEMAND TEST (If pH is below 7.2)

1. Add solution #3B one drop at a time, counting drops, inverting between drops, until color matches 7.6 to pH color standards.
2. Refer to Alkali Demand Chart for proper amount of soda ash or sodium bicarbonate to be added to pool or spa.

TOTAL ALKALINITY

1. Fill large test vial to lower broken line.
2. Add 1 drop solution #4 (2 drops if Chlorine test was above 1.5 ppm) and mix thoroughly by inverting.
3. Add 1 drop solution #5.
4. Add solution #3 one drop at a time (inverting between drops) and counting the number of drops necessary to change color to clear or light yellow.
5. Multiply drops of solution #3 used by 10. See test booklet for additional information.

WATER HARDNESS (Rinse test vial)

1. Fill large cell to lower broken line with water sample.
2. Add 2 drops of solution #6 to water sample and invert to mix.
3. Add solution #7 one drop at a time, inverting test vial between drops to mix. Count the number of drops it takes the red color to "just change to pure blue color".
4. Each drop of solution #7 equals 50 ppm. Refer to booklet for additional information.

CYANURIC ACID TURBIDITY TEST

1. Using your test cell, insert the calibrated test stick into bottom of large chamber and hold down.
2. Fill large chamber with pool water to line "A" on test stick.
3. Without touching the contents of the foil package with your hands or fingers, add one cyanuric tablet to large chamber. Touching the tablet might result in a false reading. The tablet should be white in color.
4. Crush tablet with test stick then mix by moving test stick up and down 15 to 20 times, leaving test stick at bottom of chamber.
5. Allow the solution to set for about 2 minutes (no longer than 5 minutes) before continuing test.
6. Read out is made by looking down through the solution from top of test chamber to observe black dot. If black dot cannot be seen, raise test stick above water level and then tower carefully until black dot just disappears. Read through the clear chamber while holding the test cell in a straight vertical position. The number on the test stick closest to the water level will be your reading in parts per million of Cyanuric Acid to a million parts of water in your pool.

If the black dot does not disappear before reaching the bottom of the test chamber, your pool contains less than 20 parts per million of Cyanuric Acid and action would normally be taken. Remember to adhere to the manufacturer's recommendation of Cyanuric Acid being used or contact your local pool and spa dealer.

Read cautions on individual container carefully
KEEP OUT OF REACH OF CHILDREN

LOWERING pH WITH MURIATIC ACID - Number of drops of Solution #3 used in test #3
 oz = Ounce C = Cup P = Pint Q = Quart G = Gallon 2 cups = 1 pint

GALLONS	DROPS OF SOLUTION									
	1	2	3	4	5	6	7	8	9	10
250	1/5 oz	2/5 oz	3/5 oz	4/5 oz	1 oz	1 1/5 oz	1 2/5 oz	1 3/5 oz	1 4/5 oz	2 oz
500	2/5 oz	4/5 oz	1 1/5 oz	1 3/5 oz	2 oz	2 2/5 oz	2 4/5 oz	3 1/5 oz	3 4/5 oz	4 oz
1,000	4/5 oz	1 3/5 oz	2 2/5 oz	3 1/5 oz	4 oz	4 4/5 oz	5 3/5 oz	6 2/5 oz	7 1/5 oz	8 oz
5,000	1/2 C	1 C	1 1/2 C	1 P	2 1/2 C	3 C	3 1/2 C	2 P	2 1/4 P	2 1/2 P
10,000	1 C	1 P	1 1/2 P	1 Q	2 1/2 P	3 P	3 1/2 P	2 Q	4 1/2 P	2 1/2 Q
15,000	1 1/2 C	1 1/2 P	2 1/4 P	3 P	2 Q	2 1/4 Q	2 1/2 Q	3 Q	3 1/2 Q	1 G
20,000	1 P	1 Q	3 P	2 Q	2 1/2 Q	3 Q	3 1/2 Q	1 G	4 1/2 Q	1 1/4 G
25,000	1 1/4 P	2 1/2 P	2 Q	2 1/2 Q	3 Q	1 G	4 1/2 Q	1 1/4 G	1 1/2 G	1 1/2 G
30,000	1 1/2 P	3 P	2 1/4 Q	3 Q	1 G	4 1/2 Q	1 1/4 G	1 1/2 G	1 3/4 G	2 G
35,000	1 3/4 P	3 1/2 P	2 3/4 Q	3 1/2 Q	4 1/2 Q	1 1/4 G	1 1/2 G	1 3/4 G	2 G	2 1/4 G
40,000	1 Q	2 Q	3 Q	1 G	1 1/4 G	1 1/2 G	1 3/4 G	2 G	2 1/4 G	2 1/2 G

Dry Acid Equivalents: 4/5 oz Muriatic Acid = 1 oz Dry Acid
 1 pint Muriatic Acid = 20 oz Dry Pool Acid
 1 oz Muriatic Acid = 1 1/4 oz Dry Acid

1 cup Muriatic Acid = 10 oz Dry Pool Acid
 1 quart Muriatic Acid = 40 oz Dry Pool Acid

NOTE: Do not add more than one quart per 20,000 gallons at a time and allow about 4-6 hours between doses.