

*Guidebook (#2004B) amplifies these instructions and should be read to use this product properly.*

## POOL & SPA WATER TESTS

1. Keep test kit out of reach of children.
2. Read precautions on all labels.

3. Store test kit in cool, dark place.
4. Replace reagents once each year.
5. Do not dispose of solutions in pool or spa.

6. Rinse cells / tubes before and after each test. Instr. #5510
7. Obtain samples 18" (45 cm) below water surface.
8. Hold dropper bottle vertically when dispensing reagent.

### Free, Combined & Total Chlorine Test

1. Rinse and fill test cells to mark with water to be tested.

NOTE: For low chlorine Slide™ (#9082), 0-3.0 ppm, use 11.5 mL test cells (#4024). For high chlorine Slide™ (#9083), 1.0-10 ppm, use 5 mL test cells (#4025).

2. Wipe dry and place in three center slots of comparator base WITH FROSTED SIDE FACING OPERATOR.
3. Add 5 drops R-0001 DPD Reagent #1 and 5 drops R-0002 DPD Reagent #2 to center test cell. Cap and invert to mix.
4. Wipe dry and place in center slot of comparator base.
5. Match color with color standard. Record as parts per million (ppm) free chlorine (Cl<sub>2</sub>).
6. Add 5 drops R-0003 DPD Reagent #3. Cap and invert to mix.
7. Wipe dry and place in center slot of comparator base.
8. Match color immediately. Record as ppm total chlorine (Cl<sub>2</sub>).
9. Subtract free chlorine (FC) from total chlorine (TC). Record as ppm combined chlorine (CC) as Cl<sub>2</sub>.  
Formula: TC - FC = CC.

### Total Bromine Test

1. Rinse and fill test cells to mark with water to be tested.

NOTE: For low bromine Slide™ (#9079), 0-3.0 ppm, use 11.5 mL test cells (#4024). For high bromine Slide™ (#9236), 2.0-10 ppm, use 5 mL test cells (#4025).

2. Wipe dry and place in three center slots of comparator base WITH FROSTED SIDE FACING OPERATOR.
3. Add 5 drops R-0001 DPD Reagent #1 and 5 drops R-0002 DPD Reagent #2 to center test cell. Cap and invert to mix.
4. Wipe dry and place in center slot of comparator base.
5. Match color with color standard. Record as parts per million (ppm) total bromine (Br<sub>2</sub>).

### pH Test

1. Rinse and fill 11.5 mL test cells (#4024) to 11.5 mL mark with water to be tested.
2. Wipe dry and place in three center slots of comparator base WITH FROSTED SIDE FACING OPERATOR.
3. Using a 1.0 mL pipet (#4030), add 0.5 mL R-1003J pH Indicator to center test cell. Cap and invert to mix.
4. Wipe dry and place in center slot of comparator base.
5. Match color with color standard. Record as pH units and save sample if pH needs adjustment. If sample color is between two values, pH is average of the two. To LOWER pH: See Acid Demand Test. To RAISE pH: See Base Demand Test.

### Acid Demand Test

1. Use treated sample from pH test.
2. Add R-0853 Acid Demand Reagent dropwise. After each drop, count, cap and invert to mix, and compare with color standards until desired pH is matched. See Treatment Tables to continue.

### Base Demand Test

1. Use treated sample from pH test.
2. Add R-0862 Base Demand Reagent dropwise. After each drop, count, cap and invert to mix, and compare with color standards until desired pH is matched. See Treatment Tables to continue.

NOTE: pH Indicator, Acid Demand Reagent, and Base Demand Reagent used for Midget™ and Slide™ comparators are not interchangeable with 2000 Series™ comparators. That is, reagents R-0004, R-0005, and R-0006 cannot be substituted for reagents R-1003J, R-0853, and R-0862.

### Total Alkalinity (TA) Test

1. Rinse and fill sample tube (#9198) to 25 mL mark with water to be tested.\*
2. Add 2 drops R-0007 Thiosulfate N/10. Swirl to mix.
3. Add 5 drops R-0008 Total Alkalinity Indicator. Swirl to mix. Sample will turn green.
4. Add R-0009 Sulfuric Acid .12N dropwise, swirling and counting after each drop, until color changes from green to red.
5. Multiply drops in Step 4 by 10. Record as parts per million (ppm) total alkalinity as calcium carbonate (CaCO<sub>3</sub>).

\*When high TA is anticipated: Use 10 mL sample, 1 drop R-0007, 3 drops R-0008, and multiply drops in Step 4 by 25.

### Calcium Hardness (CH) Test

1. Rinse and fill sample tube (#9198) to 25 mL mark with water to be tested.\*
2. Add 20 drops R-0010 Calcium Buffer. Swirl to mix.
3. Add 5 drops R-0011L Calcium Indicator Liquid. Swirl to mix. If calcium hardness is present, sample will turn red.
4. Add R-0012 Hardness Reagent dropwise, swirling and counting after each drop, until color changes from red to blue.
5. Multiply drops in Step 4 by 10. Record as parts per million (ppm) calcium hardness as calcium carbonate (CaCO<sub>3</sub>).

\*When high CH is anticipated: Use 10 mL sample, 10 drops R-0010, 3 drops R-0011L, and multiply drops in Step 4 by 25.

### Total Hardness (TH) Test

1. Rinse and fill sample tube (#9198) to 25 mL mark with water to be tested.
2. Add 10 drops R-0854 Total Hardness Reagent. Swirl to mix. If total hardness is present, sample will turn red.
3. Add R-0012 Hardness Reagent dropwise, swirling and counting after each drop, until color changes from red to blue.
4. Multiply drops in Step 3 by 10. Record as parts per million (ppm) total hardness as calcium carbonate (CaCO<sub>3</sub>).

### Magnesium Hardness (MH) Test

1. Subtract calcium hardness (CH) from total hardness (TH). Record as ppm magnesium hardness (MH) as calcium carbonate (CaCO<sub>3</sub>).  
Formula: TH - CH = MH.

### Cyanuric Acid (CYA) Test

1. Rinse and fill bottle (#9194) to 15 mL mark with water to be tested.
2. Add R-0013 Cyanuric Acid Reagent to neck. Cap and mix for 30 seconds.
3. Slowly transfer cloudy solution to test tube (#9193) until black dot on bottom just disappears when viewed from top.
4. Read test tube at liquid level. Record reading as parts per million (ppm) cyanuric acid (CYA).

### Copper Test

1. Rinse and fill 11.5 mL test cells (#4024) to 11.5 mL mark with water to be tested.
2. Wipe dry and place in three center slots of comparator base WITH FROSTED SIDE FACING OPERATOR.
3. Using a 1.0 mL pipet (#4030), add 0.5 mL R-0860 Copper Reagent #1 to center test cell. Using a separate 1.0 mL pipet, add 0.5 mL R-0861 Copper Reagent #2. Cap and invert to mix.
4. Wipe dry and place in center slot of comparator base. WAIT 5 MINUTES.
5. Match color with color standard. Record as parts per million (ppm) copper (Cu).

### Iron Test

1. Rinse and fill 11.5 mL test cells (#4024) to 11.5 mL mark with water to be tested.
2. Wipe dry and place in three center slots of comparator base WITH FROSTED SIDE FACING OPERATOR.
3. Using a 1.0 mL pipet (#4030), add 0.5 mL R-0851 Iron Reagent #1 to center test cell. Cap and invert to mix. WAIT 2 MINUTES.
4. Using a separate 1.0 mL pipet, add 1.0 mL R-0852 Iron Reagent #2. Cap and invert to mix.
5. Wipe dry and place in center slot of comparator base.
6. Match color with color standard. Record as parts per million (ppm) iron (Fe).

