

## COLOR COMPARISON TEST POLYPHOSPHATE (0-25 ppm)

### COMPONENTS:

1 x 2280	Cap, Dispenser, 28 mm, white (or #2269, 18 mm)
1 x 4004	Cylinder, Graduated, 10 mL (0.2 mL div), glass
1 x 4005	Cylinder, Graduated, 50 mL (1.0 mL div), glass
5 x 4023	Test Tube, Calibrated (5 mL), glass
1 x 4027	Funnel, 58 mm, plastic
1 x 4043	Flask, Erlenmeyer, 125 mL, glass
1 x 5754	Instruction
1 x 6003	Brush, Test Tube
1 x 6009	Filter Paper, 9.0 cm, #610, 100/box
2 x 9021	Test Tube, Mixing, Calibrated (5, 10, 14, 15, 17.5 mL), glass w/ stopper
1 x 9111	Slide Comparator, Orthophosphate, Stannous Chloride, 0-25 ppm
1 x 9190	Base, Slide Comparator (for test tubes)
1 x R-0601-E	Molybdate Reagent*, 16 oz
1 x R-0602P-I	Stannous Chloride Powder, 10 g
1 x R-0640-E	Reversion Acid**, 16 oz
1 x R-0641-E	Reversion Neutralizer***, 16 oz

Also required but not included: Hot Plate

**TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE  
800-TEST KIT (800-837-8548).**

### PROCEDURE:

**CAREFULLY READ AND FOLLOW PRECAUTIONS ON REAGENT LABELS.  
KEEP REAGENTS AWAY FROM CHILDREN.**

#### Total Phosphate Test

1. Filter water to be tested to clarify.
2. Rinse and fill 50 mL graduated cylinder (#4005) to 25 mL mark with filtered sample. Transfer to 125 mL flask (#4043).
3. Using 10 mL graduated cylinder (#4004), add 5 mL R-0640 Reversion Acid.

Instr. #5754

4. Heat to boiling. Simmer 15 minutes.

NOTE: Do not allow more than half of sample to evaporate. Do not allow sample to evaporate until white fumes can be seen. A high reading may result.

5. Remove from heat. Cool to room temperature.
6. Using a clean 10 mL graduated cylinder (#4004), add 5 mL R-0641 Reversion Neutralizer. Transfer to 50 mL graduated cylinder (#4005).
7. Dilute to 25 mL mark with distilled or deionized water. Pour back and forth into flask to mix.
8. Rinse and fill one mixing test tube (#9021) to 10 mL mark with treated sample.
9. Dilute to 14 mL mark with distilled or deionized water. Stopper and mix. Remove stopper. Transfer to two 5 mL test tubes (#4023) to 5 mL mark.
10. Wipe dry and place in two holes adjacent to center hole of comparator base (#9190).
11. Rinse and fill mixing test tube (#9021) to 10 mL mark with treated sample.
12. Cap R-0601 Molybdate Reagent with dispenser cap (#2280 or #2269). Add R-0601 Molybdate Reagent to 14 mL mark. Stopper and mix. Remove stopper.
13. Add 1 level dipper R-0602P Stannous Chloride Powder. Stopper and mix.
14. Wipe dry and place in center hole of comparator base. WAIT 1 MINUTE. Read before 5 minutes.
15. Place Slide on comparator base. Match color in center test tube with a color standard. The Slide is in proper alignment for a color match when a white line on the Slide is directly above the white line on the comparator base. Record as parts per million (ppm) total phosphate ( $\text{PO}_4$ ).

NOTE: If sample color matches or is deeper than highest color standard: Dilute sample with distilled, deionized, or phosphate-free water. Repeat test. For sample diluted with 1 part water, multiply reading by 2; for 2 parts, multiply by 3, etc.

**(OVER)**

**Orthophosphate Test**

1. Rinse and fill mixing test tube (#9021) to 10 mL mark with filtered sample.
2. Dilute to 14 mL mark with distilled or deionized water. Stopper and mix. Remove stopper. Transfer to two 5 mL test tubes (#4023) to 5 mL mark.
3. Wipe dry and place in two holes adjacent to center hole of comparator base (#9190).
4. Rinse and fill mixing test tube (#9021) to 10 mL mark with filtered sample.
5. Add R-0601 Molybdate Reagent to 14 mL mark. Stopper and mix. Remove stopper.
6. Add 1 level dipper R-0602P Stannous Chloride Powder. Stopper and mix.
7. Wipe dry and place in center hole of comparator base. WAIT 1 MINUTE. Read before 5 minutes.
8. Place Slide on comparator base. Match color in center test tube with a color standard. The Slide is in proper alignment for a color match when a white line on the Slide is directly above the white line on the comparator base. Record as parts per million (ppm) orthophosphate ( $\text{PO}_4^{3-}$ ).

NOTE: If sample color matches or is deeper than highest color standard: Dilute sample with distilled, deionized, or phosphate-free water. Repeat test. For sample diluted with 1 part water, multiply reading by 2; for 2 parts, multiply by 3; etc.

**Polyphosphate Test**

1. Subtract orthophosphate from total phosphate. Record as parts per million (ppm) polyphosphate.

Formula: total phosphate – orthophosphate = polyphosphate.

- \*WARNING: Molybdate Reagent (R-0601) contains 5-10% w/w sulfuric acid, a corrosive acid.
- \*\*WARNING: Reversion Acid (R-0640) contains 10-20% w/w sulfuric acid, a corrosive acid.
- \*\*\*WARNING: Reversion Neutralizer (R-0641) contains 5-15% w/w sodium hydroxide, a corrosive alkali.

