DROP TEST
PHOSPHONATE EQUIVALENCE (PPM) ATMP (1.0); Na_5ATMP (1.3); HEDP (0.9); K_6HDTMP (1.2); DTPMP (1.45), Na_5DTPMP (1.7)

Instr. #5051

COMPONENTS:

1 x 5051	Instruction
1 x 9198P	Sample Tube, Graduated (25 mL) w/ cap & purple dot, plastic
1 x 9315	Test Paper, pH, 1.8-3.8, 200 strips
1 x R-0686P-C	Sulfuric Acid N, 2 oz w/ purple cap, DB
1 x R-0697-C	Thiosulfate N/10, 2 oz, DB
1 x R-0802P-I	Xylenol Orange Indicator Powder, 10 g
1 x R-0803-C	Phosphonate Titrating Solution, 2 oz, DB
1 x R-0805-C	Fluoride Masking Agent, 2 oz, DB

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.

NOTE: When dispensing reagents from dropper bottles, **always** hold bottle in a vertical position.

NOTE: Iron can cause negative interference at a level greater than 5 ppm.

Orthophosphate and polyphosphate can cause positive interference at all levels.

NOTE: Run a blank using tap water. Normal blank requires about 2 drops of R-0803 Phosphonate Titrating Solution to reach endpoint.

Phosphonate Test

1. Rinse and fill 25 mL sample tube (#9198P) to 25 mL mark with water to be tested.
2. Add:

   1 drop R-0697 Thiosulfate N/10
   10 drops R-0805 Fluoride Masking Agent
   1 level dipper R-0802P Xylenol Orange Indicator Powder
   Swirl to mix.
3. Adjust pH between 2.6 and 3.0:

   Add 1 drop R-0686P Sulfuric Acid N. Swirl to mix. Dip test paper (#9315) into sample, in direction of arrow, for 3 seconds, with all color zones immersed. Match indicator zone (unnumbered square between 2.7 and 3.0 color standards) with color scale. Read printed pH value. If necessary, continue adding R-0686P Sulfuric Acid N dropwise, swirling and checking pH with a new test paper after each drop, until a pH between 2.6 and 3.0 is obtained. Sample will be yellow (Fig. 1).
4. Add R-0803 Phosphonate Titrating Solution dropwise, swirling and counting after each drop, until color changes from yellow to purplish pink (Fig. 2).
5. Subtract drops of R-0803 Phosphonate Titrating Solution in blank from drops in sample (Step 4). Multiply by appropriate conversion factor (see CONVERSION FACTORS). Record as parts per million (ppm) phosphonate.

CONVERSION FACTORS:

To express phosphonate as:	Multiply drops by:
Aminotri(methylenephosphonic acid) (ATMP)	1.0
Aminotri(methylenephosphonic acid), pentasodium salt (Na_5ATMP)	1.3
1-Hydroxyethylidene-1,1-diphosphonic acid (HEDP)	0.9
Hexamethylenediaminetetra(methylenephosphonic acid), hexapotassium salt (K_6HDTMP)	1.2
Diethylenetriaminepenta(methylenephosphonic acid) (DTPMP)	1.45
Diethylenetriaminepenta(methylenephosphonic acid), pentasodium salt (Na_5DTPMP)	1.7

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Fig. 1

Fig. 2