Phosphate Vacu-vials® Kit

K-8503: 0 - 80.0 ppm

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual.

For spectrophotometers, follow the manufacturer's instructions to set the wavelength to 420 nm and to zero the instrument using the ZERO ampoule supplied.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig 1).

2. Place the Vacu-vial ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig 2).

3. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.

4. Dry the ampoule and wait **5 minutes** for color development.

5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) phosphate (PO_4).
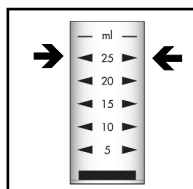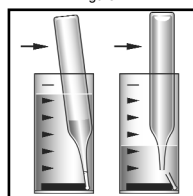

Figure 1

Figure 2

NOTE: **Only use the equation below** if you are using a spectrophotometer that is not pre-calibrated for CHEMetrics products:

$$ppm = 70.2 \, (abs) - 1.9$$

Test Method

The Phosphate Vacu-vials®[1] test kit employs the vanadomolybdophosphoric acid chemistry.[2,3] In an acidic solution, ortho-phosphate reacts with ammonium molybdate and ammonium vanadate to produce a yellow colored complex in direct proportion to the phosphate concentration.

Condensed phosphates (pyro-, meta-, and other polyphosphates) and organically bound phosphates do not respond to this test. Sulfide, thiosulfate, and thiocyanate will cause low test results.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 22nd ed., method 4500-P C - 1999
3. ASTM D 515 - 82, Phosphorus in Water, Test Method C

Safety Information

Read MSDS (available at www.chemetrics.com) before performing this test procedure. Wear safety glasses and protective gloves.

**Visit www.chemetrics.com to view product demonstration videos.
Always follow the test procedure above to perform a test.**

CHEMetrics
Water Analysis Systems