

# Phosphate Vacu-vials® Kit

**K-8503:** 0 - 80.0 ppm PO<sub>4</sub> (Prog. # 158)

## 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<sub>4</sub>).

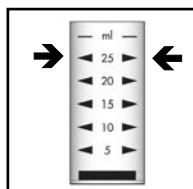


Figure 1

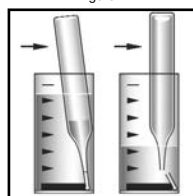


Figure 2

**NOTE:** If using a spectrophotometer that is not pre-calibrated for CHEMetrics products, then use the **equation below** or the **Concentration Calculator** found under the Support tab at [www.chemetrics.com](http://www.chemetrics.com).

$$\text{ppm} = 72.9 (\text{abs}) - 1.8$$

## Test Method

The Phosphate Vacu-vials®<sup>1</sup> test kit employs the vanadomolybdophosphoric acid chemistry.<sup>2,3</sup> 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 SDS (available at [www.chemetrics.com](http://www.chemetrics.com)) before performing this test procedure. Wear safety glasses and protective gloves.

Visit [www.chemetrics.com](http://www.chemetrics.com) to view product demonstration videos.  
Always follow the test procedure above to perform a test.



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