



Technical Data Sheet

Phosphate (reactive, ortho) Vanadomolybdophosphoric Acid Method

Applications and Industries: Domestic and industrial wastewater, industrial process waters, boiler water, cooling water, surface and ground water, potable water, seawater; Power generation, pulp and paper, food and beverage

References: APHA Standard Methods, 22nd ed., Method 4500-P C - 1999. ASTM D 515-82, Phosphorous in Water, Test Method C.

Chemistry: 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. Results are expressed in ppm (mg/L) phosphate as PO₄. To convert results from ppm PO₄ to ppm P, divide by 3.06.

Interference Information:

High concentrations of ferrous iron and other reducing agents may cause blue color development rather than yellow.

Molybdate at >1000 ppm, thiosulfate, sulfide, thiocyanate, bismuth, thorium, fluoride, or arsenate may cause a false negative result.

Arsenate and silica can become positive interferences only if the sample is heated.

Samples with extreme pHs or that are highly buffered should be adjusted to approximately 7 prior to analysis.

Unexpectedly high results may reflect sample contamination from labware; if contamination is suspected, labware can be rinsed with dilute sulfuric acid followed by distilled water.

Condensed phosphates (pyro-, meta-, and other polyphosphates) and organically bound phosphates do not respond to this test.

Safety Information: Safety Data Sheets (SDS) are available upon request and at www.chemetrics.com. Read SDS before using these products. Breaking the tip of an ampoule in air rather than water may cause the glass ampoule to shatter. Wear safety glasses and protective gloves.

Available Analysis Systems: Visual colorimetric: CHEMets®. Instrumental colorimetric: Vacu-vials®.

Storage Requirements: Products should be stored in the dark and at room temperature.

Shelf Life: *When stored in the dark and at room temperature:* Visual colorimetric: The CHEMets refill has a shelf life of 4 years. The color comparators have 2-year shelf lives. Instrumental colorimetric: The Vacu-vials kit has a shelf life of 4 years.

Accuracy: CHEMets kits: ± 1 color standard increment; Vacu-vials kit: ± 10% error at 60.0 ppm, ± 20% error at 20.0 ppm, and ± 30% error at 5.0 ppm.