

Summary: Organic phosphorus is converted to orthophosphate by online UV/persulfate digestion. Inorganic polyphosphates are converted to orthophosphate by online sulfuric acid digestion. Orthophosphate reacts with molybdenum(VI) and antimony(III) in an acid medium to form an antimony-phosphomolybdate complex. This complex is subsequently reduced with ascorbic acid to form a blue color, and the absorbance is measured at 880 nm.

Interferences: Filter turbid samples prior to analysis. Iron, copper, and other metals may interfere with the analysis by binding with orthophosphate and blocking the color formation reaction. The presence of less than 50 mg/L iron(III), less than 10 mg/L copper, or less than 10 mg/L silica does not interfere.

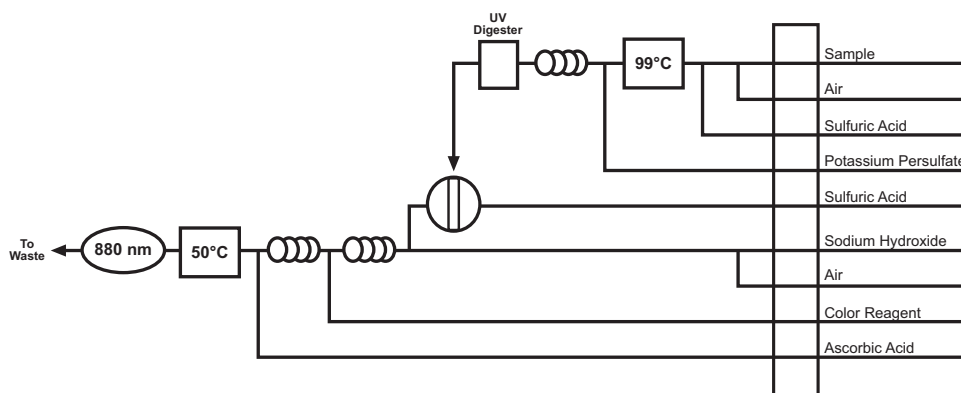
Performance Specifications:

Range:	0.10–10 mg/L
Throughput:	30 samples/hour
Precision:	
0.10 mg/L	<6% RSD
10 mg/L	<3% RSD
Method Detection Limit (MDL):	0.019 mg/L

Chemicals:

Ammonium Molybdate Tetrahydrate, (NH ₄) ₆ Mo ₇ O ₂₄ •4H ₂ O	Potassium Persulfate, K ₂ S ₂ O ₈
Antimony Potassium Tartrate Hemihydrate, K(SbO)C ₄ H ₄ O ₆ •½H ₂ O	Potassium Phosphate Monobasic, KH ₂ PO ₄
Ascorbic Acid, C ₆ H ₈ O ₆	Sodium Hydroxide, NaOH
DOWFAX® 2A1 (OI Analytical Part #A000080)	Sodium Pyrophosphate Decahydrate, Na ₄ O ₇ P ₂ •10H ₂ O
Hydrochloric Acid, concentrated, HCl	Sodium Tripolyphosphate, Na ₅ O ₁₀ P ₃
Phenylphosphate Disodium Salt Dihydrate, C ₆ H ₅ OP(O)(ONa) ₂ •2H ₂ O	Sulfuric Acid, concentrated, H ₂ SO ₄
	Trimethylphosphate, (CH ₃ O) ₃ P(O)

Basic Flow Diagram:



Selected References: *Methods for Chemical Analysis of Water and Wastewater*; EPA-600/4-79-020; U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory: Cincinnati, OH, 1984; Method 365.1.

Standard Methods for the Examination of Water and Wastewater, 20th ed.; American Public Health Association: Washington, D.C., 1998.

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