

Summary: A known amount of soil sample is extracted with the appropriate solution, and the extract is then analyzed for orthophosphate. Orthophosphate reacts with molybdenum(VI) and antimony(III) in an acidic solution to form an antimony-phosphomolybdate complex, which is subsequently reduced with ascorbic acid to form a blue color. The absorbance is measured at 660 nm.

Interferences: Dialysis prior to color development removes most interferences. The presence of less than 50 mg/L of iron(III), less than 10 mg/L of copper, or less than 10 mg/L of silica in the final extract does not interfere with the analysis.

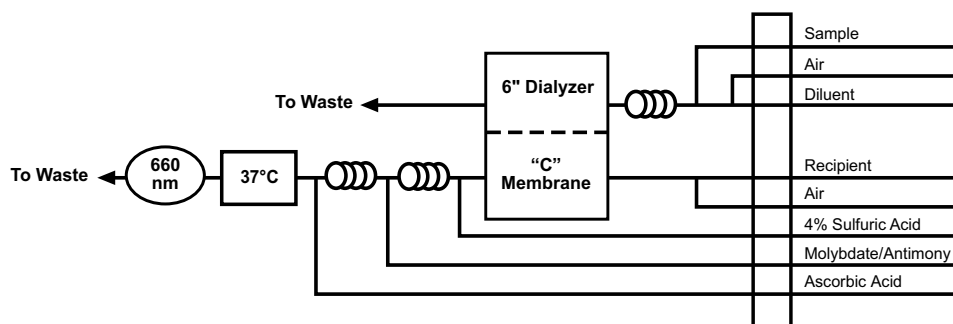
Performance Specifications:

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|-------------------------------|-----------------|
| Range: | 0.2–100 mg/L |
| Throughput: | 38 samples/hour |
| Precision: | |
| 0.2 mg/L | <5% RSD |
| 5.0 mg/L | <2% RSD |
| 50 mg/L | <2% RSD |
| 100 mg/L | <2% RSD |
| Method Detection Limit (MDL): | 0.02 mg/L |

Chemicals:

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| Ammonium Molybdate Tetrahydrate, (NH ₄) ₆ Mo ₇ O ₂₄ •4H ₂ O | Hydrochloric Acid, concentrated, HCl |
| Antimony Potassium Tartrate Hemihydrate, K(SbO)C ₄ H ₄ O ₆ •½H ₂ O | Mercuric Chloride, HgCl ₂ |
| Ascorbic Acid, C ₆ H ₈ O ₆ | Potassium Phosphate Monobasic, KH ₂ PO ₄ |
| DOWFAX® 2A1 (OI Analytical Part #A000080) | Sodium Chloride, NaCl |
| | Sulfuric Acid, concentrated, H ₂ SO ₄ |

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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