

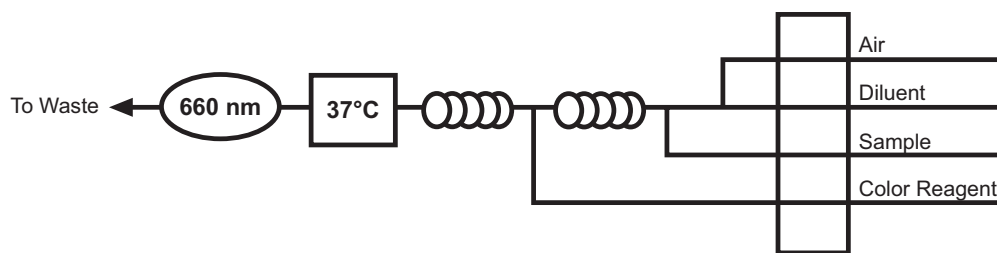
**Summary:** Prior to analysis, samples are digested via persulfate digestion to hydrolyze phosphorus to orthophosphate. Orthophosphate reacts with molybdenum(VI) and antimony(III) in an acidic solution to form an antimony-phosphomolybdate complex. This complex is reduced with ascorbic acid to form a blue color, and the absorbance is measured at 660 nm.

**Interferences:** Filter turbid samples prior to analysis. 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 silicate does not interfere with this assay. Samples with background absorbance at the analytical wavelength may interfere.

| Performance Specifications:          | Range (mg/L):            | 0.003–0.200 | 0.010–1.00 | 0.100–10.0 |
|--------------------------------------|--------------------------|-------------|------------|------------|
|                                      | Throughput (samples/hr): | 38          | 72         | 72         |
| Precision:                           |                          |             |            |            |
| 0.040 mg/L                           | <4% RSD                  | —           | —          |            |
| 0.160 mg/L                           | <2% RSD                  | —           | —          |            |
| 0.200 mg/L                           | —                        | <2% RSD     | —          |            |
| 0.800 mg/L                           | —                        | <1% RSD     | —          |            |
| 2.00 mg/L                            | —                        | —           | <2% RSD    |            |
| 8.00 mg/L                            | —                        | —           | <1% RSD    |            |
| Method Detection Limit (MDL) (mg/L): | 0.002                    | 0.002       | 0.009      |            |

|                   |   |   |
|-------------------|---|---|
| <b>Chemicals:</b> | Ammonium Molybdate Tetrahydrate, $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}$                              | DOWFAX® 2A1<br>(OI Analytical part number A000080)      |
|                   | Ammonium Persulfate, $(\text{NH}_4)_2\text{S}_2\text{O}_8$  | Hydrochloric Acid, concentrated, HCl                    |
|                   | Antimony Potassium Tartrate Hemihydrate, $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 \cdot \frac{1}{2}\text{H}_2\text{O}$ | Potassium Phosphate Monobasic, $\text{KH}_2\text{PO}_4$ |
|                   | Ascorbic Acid, $\text{C}_6\text{H}_8\text{O}_6$   | Sodium Hydroxide, NaOH                                  |
|                   |   | Sulfuric Acid, concentrated, $\text{H}_2\text{SO}_4$    |

**Basic Flow Diagram:**



**Note:** This method complies with USEPA Method 365.1.

**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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