

Summary: This method is used for the determination of phenolic compounds in drinking water, surface water, saline water, and domestic and industrial wastes. Prior to analysis, the phenol is distilled off-line from an acidic solution at 160°C. Phenol reacts with 4-aminoantipyrine (4-AAP) and alkaline ferricyanide (FeCN) to form a red complex. The absorbance is measured at 505 nm.

Interferences: Interferences from sulfur compounds are eliminated by acidifying the sample to a pH of less than 4 with phosphoric acid, aerating briefly by stirring, and adding copper sulfate. Oxidizing agents such as chlorine are removed by adding an excess of ferrous ammonium sulfate.

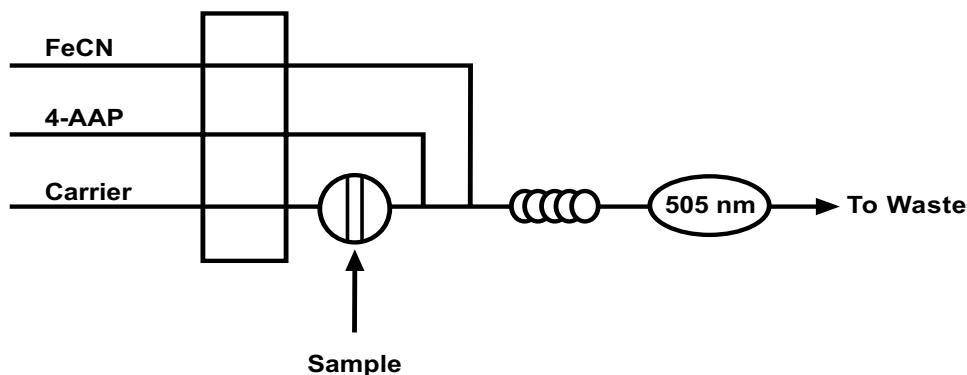
Performance Specifications:

Range:	10.0–2,000 µg/L
Throughput:	33 samples/hour
Precision:	
100 µg/L	<2% RSD
500 µg/L	<3% RSD
Method Detection Limit (MDL):	5.0 µg/L

Chemicals:

4-Aminoantipyrine, C ₁₁ H ₁₃ N ₃ O	Phenol, C ₆ H ₅ OH
Boric Acid, H ₃ BO ₄	Phosphoric Acid, concentrated, H ₃ PO ₄
DOWFAX® 2A1	Potassium Chloride, KCl
(OI Analytical Part #A000080)	Potassium Ferricyanide, K ₃ Fe(CN) ₆
Ferrous Ammonium Sulfate,	Sodium Hydroxide, NaOH
(NH ₄) ₂ SO ₄ ·FeSO ₄ ·6H ₂ O	Sulfuric Acid, concentrated, H ₂ SO ₄

Basic Flow Diagram:



Selected Reference: *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 420.2.

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