

**Summary:**

Digest the sample prior to analysis in the presence of sulfuric acid, potassium sulfate, and a mercury catalyst at a final temperature of 380°C. During digestion, free ammonia and organic nitrogen compounds such as amino acids, proteins, and peptides are converted to ammonium sulfate. Nitrogenous compounds such as amines, nitro compounds, hydrazones, oximes, semicarbazones, and some tertiary amines may not be converted. React the ammonium with salicylate and hypochlorite in a buffered alkaline solution in the presence of sodium nitroferricyanide (pH 12.8–13) to form the salicylic acid analog of indophenol blue. Measure the resulting blue-green color at 660 nm.

**Interferences:**

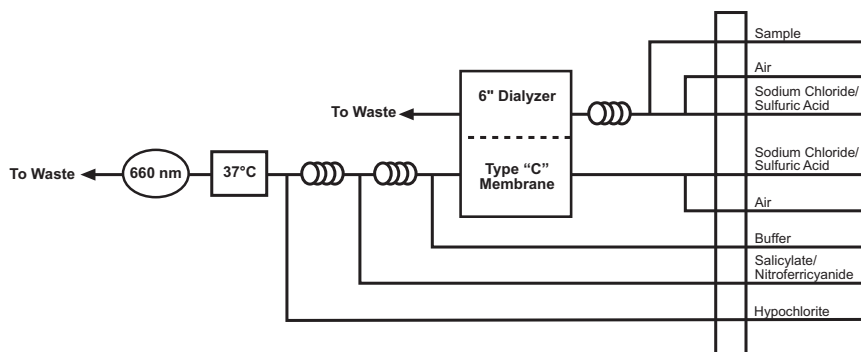
Eliminate calcium and magnesium hydroxide precipitation by adding potassium sodium tartrate to the working buffer. Filter or centrifuge turbid digestates prior to the analysis. Digestates with background absorbances at the analytical wavelength may interfere with the analysis.

**Performance Specifications:**

Range:	0.5–50 mg/L	5.0–200 mg/L
Throughput:	40 samples/hr	40 samples/hr
Precision:		
0.5 mg/L	<10% RSD	—
5 mg/L	<5% RSD	<5% RSD
50 mg/L	<3% RSD	<3% RSD
200 mg/L	—	<3% RSD
Method Detection Limit:	0.1 mg/L	0.1 mg/L

**Chemicals:**

Ammonium Sulfate, $(\text{NH}_4)_2\text{SO}_4$	Sodium Hydroxide, NaOH
Brij®-35, 30% w/v (OI Analytical Part #A21-0110-33)	Sodium Hypochlorite, 5.25% or 6.0% available chlorine (household bleach), NaOCl
Chloroform, $\text{CHCl}_3$	Sodium Nitroferricyanide Dihydrate, $\text{Na}_2\text{Fe}(\text{CN})_5\text{NO}\cdot 2\text{H}_2\text{O}$
Hydrochloric Acid, concentrated, HCl	Sodium Phosphate Dibasic Anhydrous, $\text{Na}_2\text{HPO}_4$
Potassium Sodium Tartrate Tetrahydrate, $\text{KNaC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$	Sodium Salicylate, $\text{NaC}_7\text{H}_5\text{O}_3$
Potassium Sulfate, $\text{K}_2\text{SO}_4$	Sulfuric Acid, concentrated, $\text{H}_2\text{SO}_4$
Red Mercuric Oxide, $\text{HgO}$	
Sodium Chloride, NaCl	

**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 351.2.

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