

Method Abstract

Summary: Cyanide is released from cyanide complexes by ultraviolet digestion and distillation. The liberated hydrogen cyanide is converted to cyanogen chloride by reaction with chloramine-T trihydrate at a pH of less than 8. Cyanogen chloride then reacts with a pyridine-barbituric acid reagent to form a red-colored complex. The absorbance is measured at 570 nm.

Interferences: Interferences are eliminated or reduced by distillation prior to color formation. Treat samples containing sulfide by adding cadmium nitrate. Add ascorbic acid to remove oxidizing agents that decompose cyanides. Thiocyanates produce a positive interference when they are decomposed to cyanide by ultraviolet radiation.

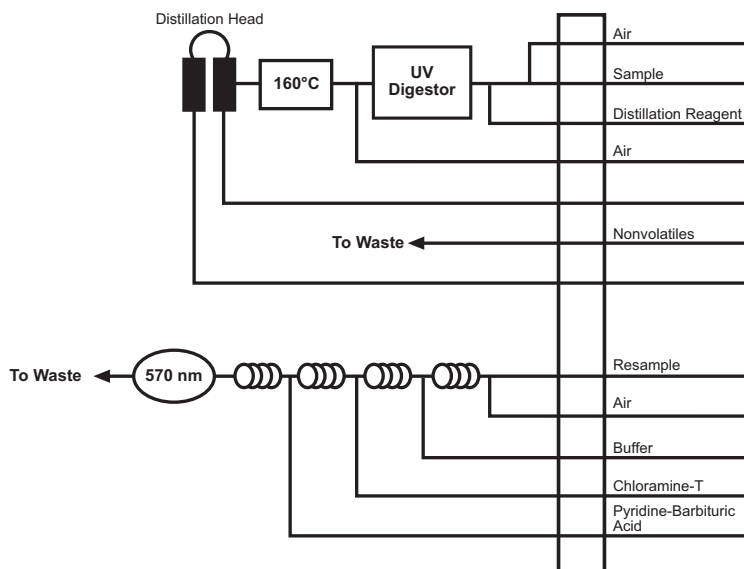
Performance Specifications:

Range:	5.0–500 µg/L
Throughput:	30 samples/hour
Precision:	
5.0 µg/L	<3% RSD
50.0 µg/L	<3% RSD
500 µg/L	<2% RSD
Method Detection Limit (MDL):	1.5 µg/L

Chemicals:

Barbituric Acid, C ₄ H ₄ N ₂ O ₃	Phosphoric Acid, concentrated, H ₃ PO ₄
Chloramine-T Trihydrate, CH ₃ C ₆ H ₄ SO ₂ NNaCl•3H ₂ O	Potassium Cyanide, KCN
DOWFAX® 2A1 (OI Analytical Part #A000080)	Potassium Phosphate Monobasic, KH ₂ PO ₄
Hydrochloric Acid, concentrated, HCl	Pyridine, C ₅ H ₅ N
Hypophosphorus Acid, 50% w/v, H ₃ PO ₂	Sodium Hydroxide, NaOH
	Sodium Phosphate Dibasic, Na ₂ HPO 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 335.3.

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