

Summary: Cyanide is released from cyanide complexes by an off-line manual distillation and collected in a sodium hydroxide receiver solution. Sodium cyanide is converted to cyanogen chloride by reaction with chloramine-T at a pH less than 8. The cyanogen chloride then reacts with the pyridine-barbituric acid reagent to form a red colored complex. The complex is measured at 570 nm.

Interferences: Several interferences are encountered with this method. Some of the known interferences are aldehydes, nitrate/nitrite, and oxidizing agents such as chlorine, thiocyanate, thiosulfate and sulfide. Multiple interferences may require the analysis of a series of laboratory fortified sample matrices (LFM) to verify the suitability of the chosen treatment. Some interferences are eliminated or reduced by the distillation.

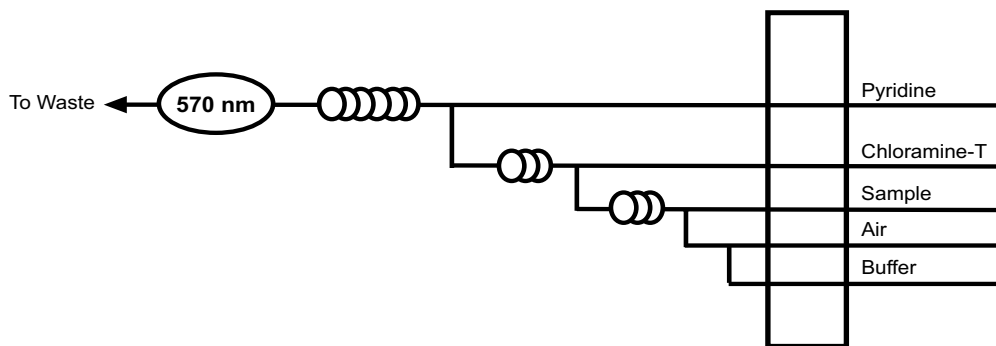
Performance Specifications:

Range:	5.0–500 µg/L CN
Rate:	72 samples/hr
Precision (100 µg/L):	<1.5% RSD
Precision (400 µg/L):	<1.0% RSD
Method Detection Limit:	2.6 µg/L

Chemicals:

Barbituric Acid, $C_4H_4N_2O_3$	Phosphoric Acid, Concentrated, H_3PO_4
Brij-35®, 30% w/v (Part #A21-0110-33)	Potassium Cyanide, KCN
Chloramine-T, $CH_3C_6H_4SO_2NNaCl \cdot 3H_2O$	Potassium Dihydrogen Phosphate, KH_2PO_4
Deionized Water (ASTM Type I or II)	Pyridine, C_5H_5N
Hydrochloric Acid, Concentrated, HCl	Sodium Hydroxide, NaOH
Hypophosphorous Acid, 50%, H_3PO_2	Sodium Phosphate, Dibasic, Na_2HPO_4

Basic Flow Diagram:



Selected References: Cyanide. *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.

Standard Methods for the Examination of Water and Wastewater, 17th ed.; American Public Health Association: Washington, D.C., 1989; pp 4–178.

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