

**Summary:** Iron(III) (ferric iron) reacts with an ascorbic acid-hydrochloric acid solution at 90°C and is reduced to iron(II) (ferrous iron). Iron(II) reacts with FerroZine® to form a pink-colored complex, and the absorbance is measured at 560 nm.

**Interferences:** Add neocuproine to prevent interference from copper. Up to 100 mg/L alkali metals and alkaline earth metals do not interfere with the assay. Filter turbid samples prior to analysis.

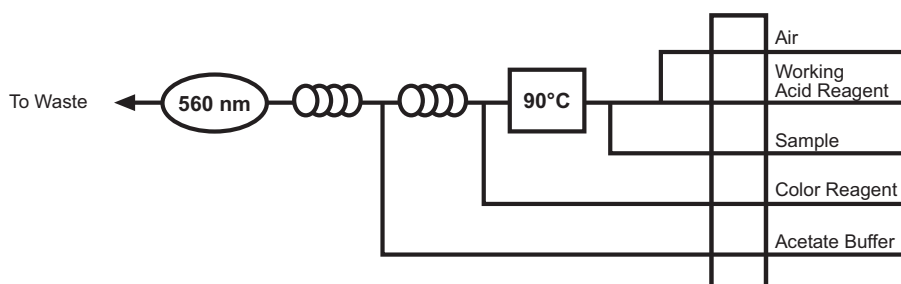
**Performance Specifications:**

Range:	0.10–5.0 mg/L
Throughput:	40 samples/hour
Precision:	
1.0 mg/L	<1% RSD
4.0 mg/L	<1% RSD
Method Detection Limit (MDL):	0.01 mg/L

**Chemicals:**

Ascorbic Acid, C <sub>8</sub> H <sub>8</sub> O <sub>6</sub>	Neocuproine Hydrochloride Hydrate, C <sub>14</sub> H <sub>12</sub> N <sub>2</sub> •HCl•H <sub>2</sub> O
Brij®-35, 30% w/v (OI Analytical Part #A21-0110-33)	3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine- <i>p,p'</i> -disulfonic Acid Monosodium Salt (FerroZine or PDT Disulfonate Monosodium Salt), C <sub>20</sub> H <sub>13</sub> N <sub>4</sub> O <sub>6</sub> S <sub>2</sub> Na
Ethylmercurithiosalicylic Acid Sodium Salt (Thimerosal), C <sub>9</sub> H <sub>9</sub> HgO <sub>2</sub> SNa	Sodium Acetate Anhydrous, NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>
Ferrous Ammonium Sulfate Hexahydrate, (NH <sub>4</sub> )Fe(SO <sub>4</sub> ) <sub>2</sub> •6H <sub>2</sub> O	Sodium Chloride, NaCl
Hydrochloric Acid, concentrated, HCl	Sodium Hydroxide, NaOH
Iron, wire, Fe	Sulfuric Acid, concentrated, H <sub>2</sub> SO <sub>4</sub>

**Basic Flow Diagram:**



**Selected References:** Stooky, L. *Analytical Chemistry* **1970**, 42 (7).

Serum Iron. *Technicon Methods*; Technicon Corporation, Tarrytown, NY, 1973; No.SF4-0025FFS.

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FerroZine is a registered trademark of Hach Chemical Co.