



Technical Data Sheet

Iron (total) PDTs Method

Applications and Industries: Boiler feedwater, surface and ground waters, wastewater

References: G. Frederick Smith Chemical Co., *The Iron Reagents*, 3rd ed., p. 47 (1980). J. A. Tetlow and A. L. Wilson, "Determination of Iron in Boiler Feedwater," *Analyst*, 1958.

Chemistry: The sample is treated with a solution of thioglycolic acid and ammonia (A-6000 Activator Solution) to dissolve most forms of particulate iron and to convert ferric iron to ferrous. The resulting ferrous iron then reacts with PDTs (3-(2-pyridyl)-5,6-bis(4-phenylsulfonic acid)-1,2,4-triazine disodium salt) to form a pink-purple colored complex in direct proportion to the total iron concentration. Certain forms of very insoluble iron (magnetite, ferrite, etc) require a digestion prior to analysis. Results are expressed as ppm (mg/L) Fe.

Interference Information:

Various metals, including copper, cobalt, chromium, and nickel, may cause false high test results.

Iron chelated with EDTA is not measured quantitatively with this test.

Samples with extreme pHs may overcome the buffering capacity of the reagent and cause low test results. In these cases, sample pH should be adjusted to 4-5 prior to analysis.

Cyanide and nitrite may interfere.

High concentrations of oxalates may interfere.

Upon addition of the thioglycolic acid, samples containing molybdate will turn blue, and those containing nitrite will turn yellow, orange, or red. Molybdate and nitrite may cause erroneous results.

This test cannot be used to analyze for only ferrous or soluble iron.

Safety Information: Safety Data Sheets (SDS) are available upon request and at www.chemetrics.com. Read SDS before using this product. Breaking the tip of an ampoule in air rather than water may cause the glass ampoule to shatter. Wear safety glasses and protective gloves.

Available Analysis Systems: Instrumental colorimetric: Vacu-vials®

Storage Requirements: Product should be stored in the dark and at room temperature.

Shelf Life: *When stored in the dark and at room temperature:* The total iron Vacu-vials test kit has a shelf life of 2 years.

Accuracy: Vacu-vials kit: ± 10% error at 1.88 ppm, ± 20% error at 0.63 ppm, ± 30% error at 0.15 ppm.

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