

Iron 2 Vacu-vials[®]

0.10 - 2.50 ppm

Instrument Set-up

For CHEMetrics photometers, follow the instrument specific **Setup and Measurement Procedures** in the Operator's manual. For spectrophotometers capable of accepting a 13 mm diameter round cell, follow the manufacturer's specifications to set the wavelength to 560 nm and to use the ZERO ampoule supplied with this test kit to zero the instrument.

Safety Information

Read MSDS before performing this test procedure. Wear safety glasses and disposable gloves.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample (fig 1).
2. Add 5 drops of A-6000 Activator Solution (fig 2). Stir briefly with the tip of the ampoule to mix the contents of the sample cup. Wait **1 minute**.

NOTE: Store the A-6000 Activator Solution in the glass bottle when not in use.

3. Place the Vacu-vial ampoule in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill leaving a small bubble to facilitate mixing (fig 3).
4. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Wipe all liquid from the exterior of the ampoule.
5. Wait **5 minutes** for color development.

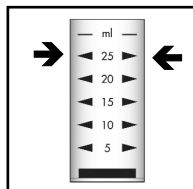


Figure 1

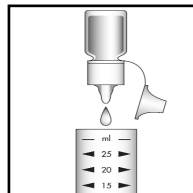


Figure 2

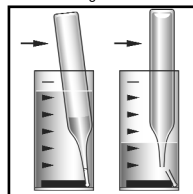


Figure 3

6. Read the Vacu-vial ampoule in your photometer. If applicable, use the calibration table to obtain test results in ppm (mg/Liter) iron as Fe. Accuracy may be compromised if test results are outside the stated test range. The lower limit of the stated test range is CHEMetrics "practical detection limit (PDL)", defined as the lowest concentration at which less than $\pm 30\%$ error is routinely obtained.

Test Method

The Iron 2 Vacu-vials^{®1} test method employs the PDTS chemistry.² The sample is treated with a mixture of thioglycolic acid and ammonia. This mixture dissolves most forms of particulate iron. 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. Results are expressed in ppm (mg/Liter) Fe. Various metals will produce high test results. Certain forms of very insoluble iron (magnetite, ferrite, etc.) require the following digestion procedure prior to running the test procedure:

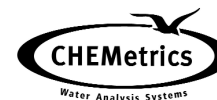
- a. Fill a heat-resistant, glass container to 25 mL with sample.
- b. Add 5 drops of A-6000 Activator solution. Stir briefly.
- c. Gently boil the sample to reduce volume to 10-15 mL.
- d. Cool the sample and dilute to 25 mL with iron-free water.
- e. Using this pretreated sample, perform the **Iron 2 Test Procedure**, beginning with Step 3.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. Tetlow, J. A.; Wilson, A.L., "Determination of Iron in Boiler Feedwater", Analyst, 1958

Reorder Information

Cat. No.

Test Kit, complete *K-6023*



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