

# Iron CHEMets Kit

**K-6010/R-6001:** 0 - 1 & 1 - 10 ppm

**K-6210/R-6201:** 0 - 1 & 1 - 10 ppm

## Safety Information

Read MSDS (available at [www.chemetrics.com](http://www.chemetrics.com)) before performing this test procedure. Wear safety glasses and protective gloves.

### K-6010 Soluble Iron Procedure

### K-6210 Ferrous Iron Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig 1).
2. Place the CHEMet ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig 2).
3. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
4. Dry the ampoule and wait **1 minute** for color development.
5. Obtain a test result using the appropriate comparator.

#### a. Low Range Comparator (fig. 3):

Place the ampoule, flat end first, into the comparator. Hold the comparator up toward a source of light and view from the bottom. Rotate the comparator until the best color match is found.

#### b. High Range Comparator (fig. 4):

Place the ampoule between the color standards until the best color match is found.

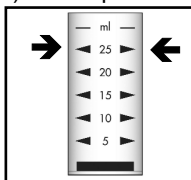


Figure 1

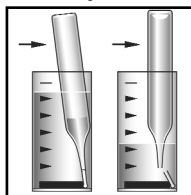


Figure 2

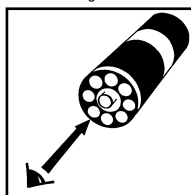


Figure 3

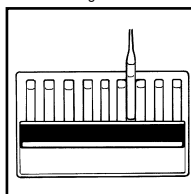


Figure 4

## Total Iron Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig. 1).
2. Add 5 drops of A-6000 Activator Solution. Stir briefly.
3. Wait **4 minutes**.
4. Stir the sample once again, then perform the **Soluble/Ferrous Iron Procedure** using this pretreated sample.

## Test Method

The Iron CHEMets®<sup>1</sup> test method employs the phenanthroline chemistry.<sup>2,3,4</sup> Ferrous iron reacts with 1,10-phenanthroline to form an orange colored complex in direct proportion to the soluble or ferrous iron concentration. Total iron is determined by adding a mixture of thioglycolic acid and ammonia to the sample. This mixture dissolves most forms of particulate iron. Various metals will produce high test results. Certain forms of very insoluble iron (magnetite, ferrite, etc.) require the following digestion procedure in place of the Total Iron Procedure:

- A. Fill a heat-resistant, glass container to 25 mL with the sample to be tested.
- B. Add 5 drops of A-6000 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. Perform the **Soluble/Ferrous Iron Procedure** using this pretreated sample.

1. CHEMets is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 21st ed., method 3500-Fe B (2005)
3. ASTM D 1068 - 77, Iron in Water, Test Method A
4. J.A. Tetlow and A.L. Wilson, "The Absorptiometric Determination of Iron in Boiler Feed-water," Analyst, Vol. 89, p 442 (1964).

Visit [www.chemetrics.com](http://www.chemetrics.com) to view product demonstration videos.  
Always follow the test procedure above to perform a test.



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