

## Iron CHEMets® 0 - 1 & 1 - 10 ppm

### Ferrous Iron Procedure

1. Fill the sample cup to the 25 mL mark with the sample (fig 1).
2. Place the CHEMet 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 2).
3. 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. Wait **1 minute** for color development.
4. Use the appropriate comparator to determine the level of iron in the sample. If the color of the CHEMet ampoule is between two color standards, a concentration estimate can be made.
  - a. Place the CHEMet ampoule, flat end downward into the center tube of the low range comparator. Direct the top of the comparator up toward a source of bright light while viewing from the bottom. Rotate the comparator until the color standard below the CHEMet ampoule shows the closest match (fig 3).
  - b. Hold the high range comparator in a nearly horizontal position while standing directly beneath a bright source of light. Place the CHEMet ampoule between the color standards moving it from left to right along the comparator until the best color match is found (fig 4).

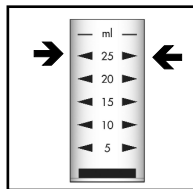


Figure 1

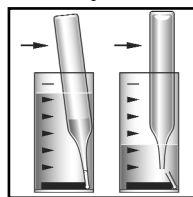


Figure 2

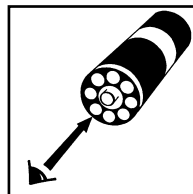


Figure 3

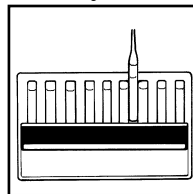


Figure 4

### Total Iron Procedure

1. Fill the sample cup to the 25 mL mark with the sample.
2. Add 5 drops of A-6000 Activator Solution. Stir briefly. Wait **4 minutes**.
3. After 4 minutes, stir the sample once again and then perform the **Ferrous Iron Procedure** using this pretreated sample.

### Test Method

The Iron CHEMets®<sup>1</sup> test method employs the phenanthroline chemistry.<sup>2,3</sup> Ferrous iron reacts with 1,10-phenanthroline to form an orange colored complex in direct proportion to the 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. 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 in place of the Total Iron Procedure:

- A. Fill a heat-resistant, glass container to 25 mL with sample.
- 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 **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, 20th ed., p. 3-76, method 3500-Fe B (1998)
3. ASTM D 1068 - 77, Iron in Water, Test Method A

### Safety Information

Read MSDS before performing this test procedure. Wear safety glasses.

### Reorder Information

### Cat. No.

<i>Test Kit, complete</i> . . . . .	<i>K-6210</i>
<i>Refill, 30 CHEMet ampoules</i> . . . . .	<i>R-6201</i>
<i>Sample Cup, 25 mL, package of six</i> . . . . .	<i>A-0013</i>
<i>Activator Solution, six 10 mL bottles</i> . . . . .	<i>A-6000</i>
<i>Comparator, 0-1 ppm</i> . . . . .	<i>C-6001</i>
<i>Comparator, 1-10 ppm</i> . . . . .	<i>C-6010</i>

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