

# Chlorine CHEMets Kit

## K-2504B/R-2509:

0 - 100 & 0 - 500 ppm

## K-2504C/R-2509:

0 - 400 & 0 - 2000 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.

### Free Chlorine Procedure

1. Place a yellow pipette tip firmly onto the end of the MiniPet<sup>®4</sup> (fig. 1).

**NOTE:** Use a fresh pipette tip for each test.

2. Depress the plunger on the minipet. Immerse the tip in the sample to be tested and release the plunger. A portion of the sample will be drawn into the tip (fig. 2).

**NOTE:** Do not touch the side or bottom of the sample container with the tip during sampling.

3. Hold the minipet over the sample cup, and depress the plunger to dispense sample (fig. 3).

4. Dilute the contents of the sample cup to the **20 mL mark with distilled water** (fig. 4).

5. Place the CHEMet ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig. 5).

6. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.

7. Dry the ampoule and wait **1 minute** for color development.

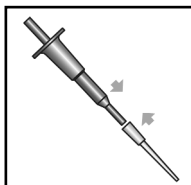


Figure 1

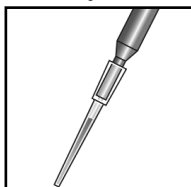


Figure 2

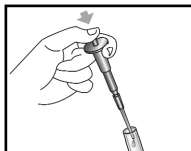


Figure 3

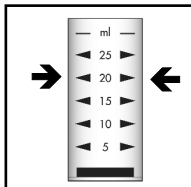


Figure 4

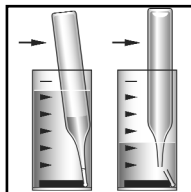


Figure 5

8. Obtain a test result using the appropriate comparator

- a. **Low Range Comparator (fig. 6):** 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.

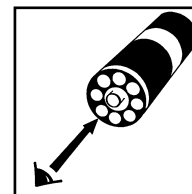


Figure 6

- b. **High Range Comparator (fig. 7):** Place the ampoule between the color standards until the best color match is found.

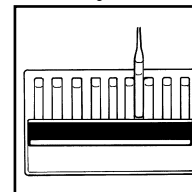


Figure 7

### Total Chlorine Procedure

1. Perform steps 1-4 of the **Free Chlorine Procedure**.
2. Add 4 drops of A-2500 Activator Solution. Stir briefly.
3. Immediately perform steps 5-8 of the **Free Chlorine Procedure** using this pretreated sample.

### Test Method

The Chlorine CHEMets<sup>®1</sup> test kits employ the DPD chemistry.<sup>2,3</sup> Free chlorine oxidizes DPD (N,N-diethyl-p-phenylenediamine) to form a pink colored species in direct proportion to the chlorine concentration. Total chlorine, the sum of free and combined chlorine, is determined by adding an excess of potassium iodide to the sample. Chloramines (combined chlorine) oxidize the iodide to iodine. The iodine then oxidizes DPD to the pink colored species.

Other halogens, ozone and halogenating agents will produce high test results. Chlorine at concentrations significantly above the test range may prevent proper color development, causing low test results.

1. CHEMets is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 21st ed., method 4500-Cl G (2005)
3. EPA Methods for Chemical Analysis of Water and Wastes, method 330.5 (1983)
4. MiniPet is a registered trademark of Tricontinent Scientific, Inc.