

# Chlorine Dioxide Vacu-vials® Kit

**K-2703:** 0.80 - 11.00 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 515 nm and to use the ZERO ampoule supplied with this test kit to zero the instrument.

## Test Procedure

1. Fill the sample cup to the 15 mL mark with the sample to be tested (fig 1).
2. Add 6 drops of A-2700 Neutralizer Solution (fig 2). Stir to mix the contents of the cup.
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. Tap the bottom of the ampoule on a hard surface to cause any tiny bubbles that have collected on the ampoule wall to rise to the top of the liquid in the ampoule. Dry the ampoule and wait **1 minute** for color development.
5. Read the Vacu-vial ampoule in your photometer. If applicable, use the calibration table to obtain test results in ppm (mg/Liter) chlorine dioxide as ClO<sub>2</sub>. Accuracy may be compromised if test results are outside the stated test range.

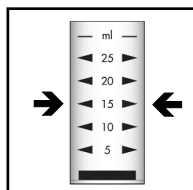


Figure 1

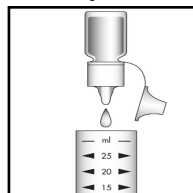


Figure 2

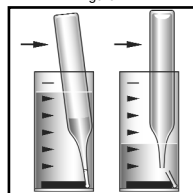


Figure 3

## Test Method

The Chlorine Dioxide Vacu-vials®<sup>1</sup> test kit employs the DPD chemistry.<sup>2,3,4</sup> Chlorine dioxide oxidizes DPD (N,N-diethyl-p-phenylenediamine) to form a pink colored species in direct proportion to the chlorine dioxide concentration. Interference from free Cl<sub>2</sub> is prevented (up to 6 ppm Cl<sub>2</sub>) by the addition of glycine to the sample. Glycine converts free chlorine to chloroaminoacetic acid. Results are expressed in ppm (mg/Liter) ClO<sub>2</sub>. Bromine, iodine, ozone and halogenating agents will produce high test results. Chlorine dioxide, at >500 ppm may prevent color development.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 20th ed., p. 4-76, method 4500-ClO<sub>2</sub> D (1998)
3. APHA Standard Methods, 20th ed., p. 4-63, method 4500-Cl G (1998)
4. EPA Methods for Chemical Analysis of Water and Wastes, method 330.5 (1983)

## Safety Information

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



*www.chemetrics.com*  
4295 Catlett Road, Calverton, VA 20138-0214 U.S.A.  
Phone: (800) 356-3072; Fax: (540) 788-4856  
E-Mail: [orders@chemetrics.com](mailto:orders@chemetrics.com)

Jan. 09, Rev. 8