Chlorine Dioxide Vacu-vials® Kit

K-2703: 0 - 11.0 ppm (Prog. # 37)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, set the wavelength to 515 nm. A sealed ZERO ampoule is supplied in this kit for zeroing when the sample is colorless and not turbid. For improved accuracy with colored or turbid samples, Sample Zeroing Accessory Pack, Cat. # A-0025 is recommended. Fill the A-0025 test tube with the sample and use this in place of the supplied ZERO ampoule 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, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig. 3).
4. To mix the ampoule, invert 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.
5. Dry the ampoule. Obtain a test result **1 minute** after snapping tip.
6. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) chlorine dioxide as (ClO_2).

   NOTE: **If using a spectrophotometer** that is not pre-calibrated for CHEMetrics products, then use the **equation below** or the **Concentration Calculator** found under the Support tab at *www.chemetrics.com*.

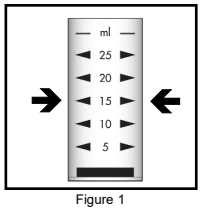

Figure 1

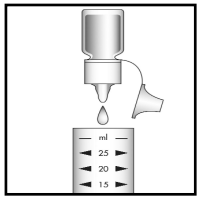

Figure 2

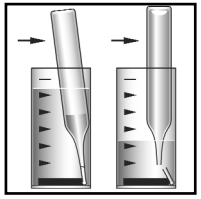
Figure 3

$$ppm = 0.80\ (abs)^2 + 8.76\ (abs) - 0.04$$

Test Method

The Chlorine Dioxide Vacu-vials®[1] test kit employs the DPD chemistry.[2,3,4] 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_2 is prevented (up to 6 ppm Cl_2) by the addition of glycine to the sample. Glycine converts free chlorine to chloroaminoacetic acid. Bromine, iodine, ozone and other oxidizing agents will produce high test results. Chlorine dioxide at concentrations significantly above the test range may prevent proper color development, causing low test results.

1. Vacu-vials is a registered trademark of CHEMetrics, LLC U.S. Patent No. 3,634,038
2. APHA Standard Methods, 20th ed., Method 4500-ClO_2 D - 1993
3. APHA Standard Methods, 23rd ed., Method 4500-Cl G - 2000
4. EPA Methods for Chemical Analysis of Water and Wastes, method 330.5 (1983)

Safety Information

Read SDS (available at www.chemetrics.com) before performing this test procedure. Wear safety glasses and protective gloves.

Visit www.chemetrics.com to view product demonstration videos.
Always follow the test procedure above to perform a test.

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