Oxygen Vacu-vials® Kit

K-7513: 0 - 15.0 ppm (Prog. # 141)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, set the wavelength to 520 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-0503 is recommended. Using the sample cup, snap the tip of the A-0503 ampoule in the sample. (see figure 2 below). Invert the ampoule to mix. Dry the ampoule and use it in place of the supplied ZERO ampoule to zero the instrument.

Sampling

The most critical part of any dissolved oxygen test is sampling. It is difficult to obtain an aliquot which accurately reflects the oxygen content of a sample. Exposure to the high oxygen content of "air" will cause a sample to approach saturation. Biological activity may cause rapid oxygen depletion. Dipping and pouring should be performed with as little agitation as possible. Analysis should be performed immediately after sampling.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig. 1).
2. Place the Vacu-vial 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. Obtain a test result **2 minutes** after snapping tip.

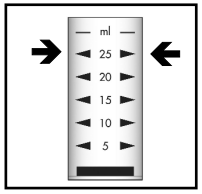

Figure 1

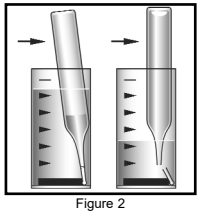
Figure 2

5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) oxygen (O_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*.

$$ppm = 1.92\ (abs)^2 + 9.96\ (abs) - 0.30$$

Test Method

The Oxygen Vacu-vials®[1] test kit employs the indigo carmine method.[2,3] In an acidic solution, oxygen oxidizes the yellow-green colored leuco form of indigo carmine to form a highly colored blue dye. The resulting blue color is proportional to the dissolved oxygen concentration in the sample.

1. Vacu-vials is a registered trademark of CHEMetrics, LLC U.S. Patent No. 3,634,038
2. ASTM D 888 - 87, Dissolved Oxygen in Water, Test Method A
3. Gilbert, T. W., Behymer, T. D., Castaneda, H. B., "Determination of Dissolved Oxygen in Natural and Wastewaters," American Laboratory, pp. 119-134, March 1982

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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