Oxygen Vacu-vials® Kit

K-7553: 0.100 - 1.000 ppm

Important Note

The Vacu-vial ampoules contain a light sensitive reagent. They will remain stable only if stored in the dark.

Safety Information

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

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, follow the manufacturer's specifications to set the wavelength to 520 nm and to zero the instrument using the ZERO ampoule supplied.

Sampling

The most critical part of any dissolved oxygen test is sampling. The sample stream must be completely leak-free. To accomplish this, the sampling tube is vertically mounted with a tube of inert material connecting the sample point to the bottom of the sampling tube. Use stainless steel, type 304 or 316, or glass tubing with short neoprene connections. Do not use copper tubing, long sections of neoprene or other polymeric tubing.

Test Procedure

1. To remove trapped air bubbles, the system should be purged with water that is flowing at the fastest possible rate, and has a temperature of 180 - 210°F (80 - 100°C). New sampling systems should be purged for several hours, while those used routinely may require only a few minutes. **When the system is fully purged, reduce the flow to 500 - 1000 mL per minute and cool the sample to ambient temperature.**
2. Place the Vacu-vial ampoule, tip first, into the sampling tube. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig. 1).
3. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
4. Dry the ampoule. Test results should be obtained within **30 seconds** after snapping the ampoule.
5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) oxygen (O_2). Accuracy may be compromised if test results are outside the stated test range.

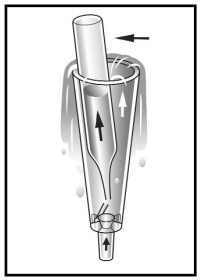

Figure 1

NOTE: **Only use the equation below** if you are using a spectrophotometer that is not pre-calibrated for CHEMetrics products:

$$ppm = 0.241\ (abs)^2 + 1.027\ (abs) - 0.023$$

Test Method

The Oxygen Vacu-vials®[1] test kit employs the Rhodazine D™ Method.[2,3,4,5] Dissolved oxygen reacts with the pale yellow colored leuco form of Rhodazine D to produce a deep rose color. The resulting color is proportional to the dissolved oxygen concentration in the sample.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. Rhodazine D methodology was developed by and is a trademark of CHEMetrics, Inc.
3. ASTM D 5543 - 09, Low Level Dissolved Oxygen in Water
4. ASTM Power Plant Manual, 1st ed., p. 169 (1984)
5. Department of the Navy, Final Report of NAVSECPHILADIV Project A-1598; Evaluation of CHEMetrics Feedwater Dissolved Oxygen Test Kit (1975)

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

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