Oxygen Vacu-vials® Kit

K-7553: 0 - 1.000 ppm (Prog. # 142)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers follow the manufacturer's instructions 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. Incorrect sampling technique will cause false positive test results. For guidance on appropriate sampling protocol, view the video on the specific product page on the website.

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.

Sample Temperature

Sample temperatures that deviate significantly from 68°F (20°C) may introduce test result bias.

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. Gently invert the ampoule several times, allowing the bubble to travel from end to end.
4. Dry the ampoule. Obtain a test result within **30 seconds** after snapping tip.
5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) oxygen (O_2).

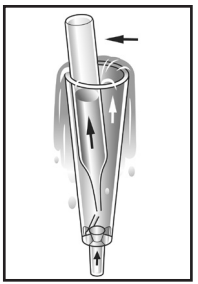

Figure 1

NOTE: If using a spectrophotometer that is not pre-calibrated for CHEMetrics products, then use the **equation below** or the **Concentration Calculator** on the website.

$$ppm = 0.118\ (abs)^2 + 1.092\ (abs) - 0.014$$

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 AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038
2. Rhodazine D methodology was developed by and is a trademark ofAquaPhoenix Scientific, LLC
3. ASTM D 5543 - 15, 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)

Safety Information

Read SDS before performing this test procedure. Wear safety glasses and protective gloves.

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