

Ozone Vacu-vials® Kit

K-7413: 0.30 - 1.00 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 600 nm and to use the reagent blank ampoule generated below to set the instrument to 30% transmittance.

NOTE: For instruments that cannot be set manually to 30%T for the reagent blank ampoule, set the instrument in absorbance mode and use the zeroing function to zero the instrument. In this case, all subsequent instrument readings on samples containing ozone will be negative absorbance values.

Generating Reagent Blank

A fresh reagent blank must be generated for each series of tests performed and with each new lot number of Ozone Vacu-vials. Use a reagent blank ampoule from the same lot as the test Ozone Vacu-vials.

To generate the reagent blank ampoule, perform **Steps # 1-3** of the test procedure as outlined below using **distilled water** in place of sample in **Step # 1**.

The resulting ampoule is the reagent blank (For CHEMetrics photometers, see instrument specific **Setup and Measurement Procedures**).

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested, being careful to minimize turbulence (fig 1).

NOTE: OZONE loss from sample occurs easily and rapidly. Dipping and pouring operations should occur with as little agitation as possible.

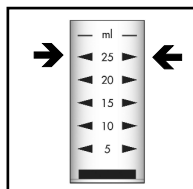


Figure 1

2. 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 2).

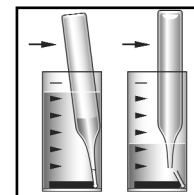


Figure 2

3. **Immediately** mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end. Dry the ampoule and wait **1 minute** for color development.
4. Read the Vacu-vial ampoule in your photometer. If applicable, use the calibration table to obtain test results in ppm (mg/Liter) ozone as O₃. Reliable test results can only be obtained on samples containing ozone concentrations within the stated test range for this product.

Note: For instruments that were set manually to 30% T with a reagent blank, use the **Concentration vs. % Transmittance** calibration table. For instruments zeroed with the photometer zero function, use the **Concentration vs Absorbance** calibration table.

Test Method

The Ozone Vacu-vials®¹ test kit employs the indigo chemistry.^{2,3} Indigo trisulfonate reagent reacts quantitatively with ozone, bleaching the blue color in direct proportion to the amount of ozone present. Malonic acid is included in the ampoule to prevent interference from up to 3 ppm chlorine.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,364,038.
2. Bader, H. and Hoigne, J. "Determination of Ozone in Water by the Indigo Method," Water Research Vol. 15, 449-456, 1981.
3. APHA Standard Methods, 20th ed., p 4-137, method 4500-O₃ B (1998)

Safety Information

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

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Oct. 08, Rev 8