

# Copper Vacu-vials® Kit

## K-3503

V-2000, V-3000: 0 - 12.00 ppm (Prog. # 55)

Spectrophotometer: 0 - 7.00 ppm

### 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 **485 nm** and to zero the instrument using the ZERO ampoule supplied.

### 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 the tip.
5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) copper (Cu).

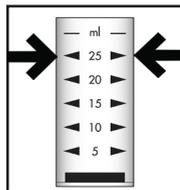


Figure 1

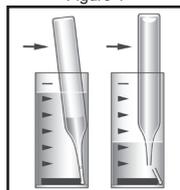


Figure 2

**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.

$$\text{ppm} = 0.37 (\text{abs})^2 + 5.93 (\text{abs}) - 0.01$$

### Test Method

The Copper Vacu-vials®<sup>1</sup> test kit employs the bathocuproine chemistry.<sup>2</sup> In a neutral solution, cuprous ions react with bathocuproine (2,9-dimethyl-4,7-diphenyl-1,10-phenanthrolinedisulfonic acid, disodium salt) to form an orange colored chelate in direct proportion to the copper concentration.

This test method is applicable to drinking water, surface water, groundwater, wastewaters and seawater. For seawater analysis wait **1 minute** for color development.

1. Vacu-vials is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038

2. APHA Standard Methods, 23<sup>rd</sup> ed., method 3500-Cu C - 1999

### Safety Information

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

