

Zinc Vacu-vials®

0.30 - 3.00 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 620 nm and to use the ZERO ampoule supplied with this test kit to zero the instrument.

Safety Information

Read MSDS before performing this test procedure. Wear safety glasses.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample (fig 1).
2. Add 8 drops of A-9900 Indicator Solution (fig 2). Stir briefly with the tip of the ampoule to mix the contents of the sample cup.
3. 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 3).
4. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Wipe all liquid from the exterior of the ampoule.
5. Wait **1 minute** for color development.
6. Read the Vacu-vial ampoule in your photometer. If applicable, use the calibration table to obtain test results in ppm (mg/Liter) zinc as Zn. Accuracy may be compromised if test results are outside the stated test range. The lower limit of the stated test range is CHEMetrics "practical detection limit (PDL)", defined as the lowest concentration at which less than $\pm 30\%$ error is routinely obtained.

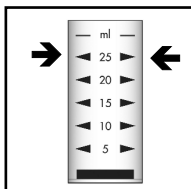


Figure 1

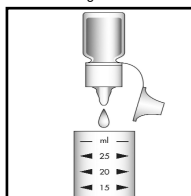


Figure 2

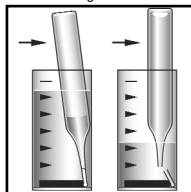


Figure 3

Test Method

The Zinc Vacu-vials® test method employs the zincon chemistry.^{2,3} In an alkaline solution, dissolved zinc reacts with zincon (2-carboxy-2'-hydroxy-5'-sulfoformazyl benzene) to produce a blue colored complex in direct proportion to the dissolved zinc concentration. Results are expressed in ppm (mg/Liter) Zn. Other heavy metals also form colored complexes with zincon.

This test method determines **soluble zinc** only. To obtain test results for total zinc, perform the following pretreatment procedure:

- a. Add 1 mL of concentrated hydrochloric acid to a 50 mL sample. Mix thoroughly.
- b. Adjust the sample pH to between 3 and 7 using 6 N sodium hydroxide. Use caution not to exceed pH 7.
- c. Allow sample to cool to 30°C if necessary.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038

2. APHA Standard Methods, 20th ed., p. 3-105, method 3500-Zn B (1998)

3. ASTM D 1691 - 84, Zinc in Water, Test Method A

Reorder Information

Cat. No.

Test Kit, complete K-9903



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