Zinc Vacu-vials® Kit

K-9903: 0 - 3.00 ppm (Prog. # 187)
K-9923: 0 - 15.0 ppm (Prog. # 188)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, set the wavelength to 620 nm and zero the instrument with the reagent blank ampoule generated below.

For improved accuracy with colored or turbid samples, Sample Zeroing Accessory Pack, Cat. # A-0503 is available for use with CHEMetrics photometers only. Using the sample cup, snap the tip of the A-0503 ampoule in the sample as shown in figure 3 (diluted sample for K-9923). Invert the ampoule to mix. Dry the ampoule and use it in place of the supplied ZERO ampoule to zero the insrument.

Generating Reagent Blank

A fresh reagent blank must be generated for each series of tests and for each new lot of Zinc Vacu-vials. Use a reagent blank ampoule from the same lot as the test Zinc Vacu-vials. To generate the reagent blank ampoule, perform **Steps # 1-5** of the test procedure using **distilled water** in place of sample in **Step # 1**.

Sample Preparation for K-9923 Only

Using the syringe, dispense 5 mL of the sample to be tested into the empty sample cup. Dilute to the 25 mL mark with distilled water. Perform the procedure below beginning with Step 2.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig 1).
2. Add 8 drops of A-9900 Indicator Solution (fig 2) to the cup. Stir to mix the contents of the cup.
3. Place the Vacu-vial ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig 3).

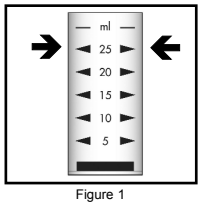

Figure 1

4. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
5. Dry the ampoule. Obtain a test result **1 minute** after snapping tip.
6. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) zinc (Zn).

NOTE: **If using a spectrophotometer** that is not pre-calibrated for CHEMetrics products, then use the **equation below** or the **Concentration Calculator** found under the Support tab at *www.chemetrics.com*.

K-9903: ppm = 3.36 (abs)
K-9923: ppm = 16.91 (abs)

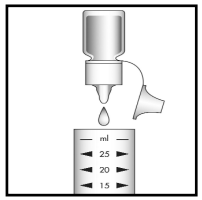

Figure 2

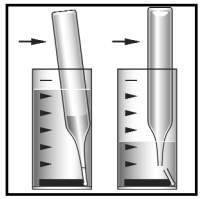
Figure 3

Test Method

The Zinc Vacu-vials®[1] test kit 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. 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 50 mL of the sample to be tested. 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.
d. Perform the test procedure on this pretreated sample.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 23rd ed., Method 3500-Zn B - 1997
3. ASTM D 1691 - 84, Zinc in Water, Test Method A

Safety Information

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

CHEMetrics
Simplicity in Water Analysis

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Sept. 19, Rev. 19