Chloride Vacu-vials® Kit

K-2103: 0 - 40.0 ppm (Prog. # 26)

Sample Pretreatment
Turbid samples must be filtered prior to performing this test.

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 455 nm and to zero the instrument using the ZERO ampoule supplied.

Generating Reagent Blank
A fresh reagent blank must be generated for each series of tests and for each new lot of Chloride Vacu-vials. Use a reagent blank ampoule from the same lot as the test Chloride 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**.

Test Procedure
1. Fill the sample cup to the 20 mL mark with the sample to be tested (fig 1).
2. Using the syringe, add 1.0 mL of S-2100 Activator Solution. 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 2).
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 the tip.

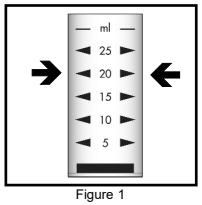

Figure 1

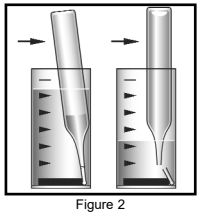
Figure 2

6. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) chloride (Cl^-).

   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

$$ppm = 29.68\ (abs)^2 + 10.10\ (abs) + 0.23$$

Test Method
The Chloride Vacu-vials®[1] test kit employs the ferric thiocyanate chemistry[2,3,4]. Chloride reacts with mercuric thiocyanate to liberate thiocyanate ion. Ferric ion reacts with thiocyanate ion to produce an orange-brown thiocyanate complex in proportion to the chloride concentration.

1. Vacu-vials is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038.
2. APHA Standard Methods, 23rd ed., Method 4500-Cl^- E - 1997.
3. Zall, David; Fisher, Donald; Garner, Mary; "Photometric Determination of Chlorides in Water", Analytical Chemistry; Vol. 28, No. 11, pp 1665-1668; November 1956.
4. O'Brien, James; "Automatic Analysis of Chlorides in Sewage", Wastes Engineering, pp 670-672, December 1962.

Important Note
The Vacu-vial ampoules contain a light sensitive reagent. Store in the dark when not in use.

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

CHEMetrics®
By AquaPhoenix Scientific

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