

# Chloride Vacu-vials® Kit

**K-2103:** 2.5 - 40.0 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 455 nm and to use the reagent blank ampoule generated below to set the instrument to 100% transmittance.

## Sample Pretreatment

If the sample is turbid, it must be filtered prior to performing this test procedure.

## Generating Reagent Blank

A fresh reagent blank must be generated for each series of tests performed and with each new lot number 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 # 1-4** 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 20 mL mark with the sample to be tested (fig 1).
2. Using the syringe, add 1.0 mL of A-2100 Activator Solution. Stir to mix the contents of the cup.

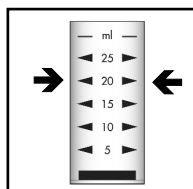


Figure 1

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 2).
4. 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.
5. Read the Vacu-vial ampoule in your photometer. If applicable, use the calibration table to obtain test results in ppm (mg/Liter) chloride as Cl<sup>-</sup>. Accuracy may be compromised if test results are outside the stated test range.

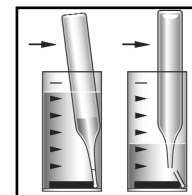


Figure 2

## Test Method

The Chloride Vacu-vials®<sup>1</sup> test kit employs the ferric thiocyanate chemistry<sup>2,3,4</sup>. 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 CHEMetrics, Inc. U.S. Patent No. 3,364,038.
2. APHA Standard Methods, 20<sup>th</sup> ed., p 4-70, Method 4500-Cl<sup>-</sup> E. (1998).
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 MSDS before performing this test. Wear safety glasses and disposable gloves.



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