

Aluminum Vacu-vials® Kit

K-0603: 0.04 - 0.25 ppm

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, follow the manufacturer's specifications to set the wavelength to 535 nm and to zero the instrument using the reagent blank ampoule generated below.

Neutralizer Solution Preparation

Fill the A-0601 Neutralizer Solution bottle to the neck with distilled water. Shake the bottle until the chemical dissolves, then re-dilute to the neck and shake it again to mix well. If the solution will be stored at room temperature, label the bottle with a **6 week** expiration date. If it will be stored in the refrigerator, label it with **3 months**.

Sample Collection/Pretreatment

Collect samples in clean **plastic** containers. Preserve by adjusting pH to 2 or less with nitric acid. Before analysis, adjust sample pH to 2.9 - 4.7 using a solution of nitric acid or potassium hydroxide.

Generating Reagent Blank

A fresh reagent blank must be generated for each series of tests and for each new lot of Aluminum Vacu-vials. Use a reagent blank ampoule from the same lot as the test Aluminum Vacu-vials. To generate the reagent blank ampoule, perform **Steps # 1-7** of the test procedure using **distilled water** in place of sample in **Step # 2**.

Test Procedure

1. Add 10 drops of A-0601 Neutralizer Solution to the empty sample cup (fig. 1).
2. Fill the sample cup to the 20 mL mark with the sample to be tested (fig 2).

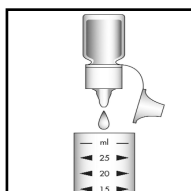


Figure 1

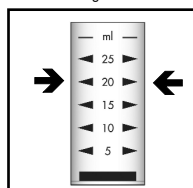


Figure 2

3. Wait **1 minute**.
4. Using the syringe, add 1.0 mL of A-0600 Activator Solution. Stir to mix the contents of the cup.
5. 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).
6. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
7. Dry the ampoule and wait **7 minutes** for color development.
8. Insert the Vacu-vials ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) aluminum. Accuracy may be compromised if test results are outside the stated test range.

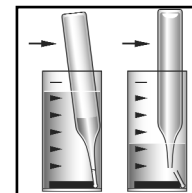


Figure 3

NOTE: Only use the equation below if you are using a spectrophotometer that is not pre-calibrated for CHEMetrics products:

$$\text{ppm} = 0.45 (\text{abs})$$

Test Method

The Aluminum Vacu-vials®¹ test kit is based on the reaction between aluminum and Eriochrome Cyanine R^{2,3} which forms a red dye-lake at approximately pH 6.0 in proportion to the amount of aluminum present in the sample.

Ferrous and ferric iron, if present in the sample at > 2.0 ppm will cause a positive interference. Fluoride and polyphosphates, present at any concentration, will cause a negative interference.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,364,038.
2. APHA Standard Methods, 21st ed; method 3500-Al B (2005)
3. Shull Kenneth E.; Guthan, Gene R., □ Rapid Modified Eriochrome Cyanine R (ECR) Method for Determination of Aluminum in Water□, JAWWA, pp 1456-1468, Nov. 1967.

Safety Information

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

Visit www.chemetrics.com to view product demonstration videos. Always follow the test procedure above to perform a test.

4295 Catlett Road, Midland, VA 22728 U.S.A.
Phone: (800) 356-3072; Fax: (540) 788-4856; E-Mail: orders@chemetrics.com
www.chemetrics.com

Aug. 12, Rev. 7