Silica Vacu-vials® Kit

K-9003

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, set the wavelength to 815 nm. A sealed ZERO ampoule is supplied in this kit for zeroing when the sample is colorless and not turbid. For improved accuracy with colored or turbid samples, Sample Zeroing Accessory Pack, Cat. # A-0503 is recommended. Using the sample cup, snap the tip of the A-0503 ampoule in the sample (see figure 3 below). Invert the ampoule to mix. Dry the ampoule and use it in place of the supplied ZERO ampoule to zero the instrument.

Test Procedure

1. Fill the sample cup to the 15 mL mark with the sample to be tested (fig. 1).
2. Add 10 drops of A-9001 Activator Solution (fig. 2). Cap the sample cup and shake it to mix the contents. Wait **4 minutes**.
3. Add 5 drops of A-9000 Neutralizer Solution (fig. 2). Cap the sample cup and shake it to mix the contents. Wait **1 minute**.
4. 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).
5. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
6. Dry the ampoule. Obtain a test result **2 minutes** after snapping tip.
7. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) silica as SiO_2.

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*.

. ppm = 3.58 (abs) - 0.04

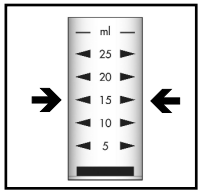

Figure 1

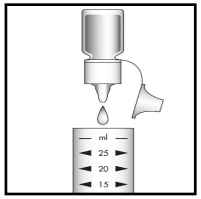

Figure 2

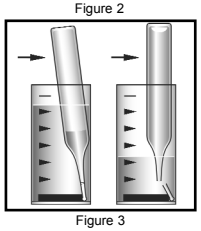
Figure 3

Test Method

The Silica Vacu-vials®[1] test kit employs the heteropoly blue chemistry.[2,3,4] Silica reacts with ammonium molybdate at a pH of 1.2 to form molybdosilicic acid, which is then reduced by aminonaphtholsulfonic acid to form heteropoly blue. The resulting blue color is directly proportional to the silica concentration in the sample. Interferences from phosphate (up to 50 ppm) are masked by the addition of A-9000 Neutralizer Solution (citric acid). This method determines "molybdate reactive" silica.

1. Vacu-vials is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 23rd ed., Method 4500-SiO_2 D - 1997
3. EPA Methods for Chemical Analysis of Water and Wastes, Method 370.1 (1983)
4. ASTM D 859-05, Silica in Water

Safety Information

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

Instrument Ranges

V-2000, V-3000: 0 - 10.00 ppm (Prog. # 168)

Spectrophotometer: 0 - 4.00 ppm

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

CHEMetrics
Simplicity in Water Analysis

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