

Molybdate Vacu-vials® Kit

K-6703: 0 - 25.0 ppm Mo (Prog. # 115)

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 **400 nm** and to zero the instrument using the ZERO ampoule supplied.

Sample Temperature

Sample temperatures that deviate significantly from 20°C (68°F) may introduce test result bias.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig. 1).
2. 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).
3. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
4. Dry the ampoule. Obtain a test result **1 minute** after snapping tip.

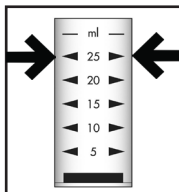


Figure 1

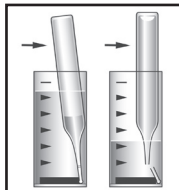


Figure 2

5. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) molybdenum (Mo).

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.

$$\text{ppm} = 26.4 (\text{abs}) - 0.4$$

NOTE: To convert to ppm molybdate (MoO_4), multiply test result by 1.67

Test Method

The Molybdate Vacu-vials^{®1} test kit employs the catechol chemistry^{2,3}. In a mildly reducing alkaline solution, catechol reacts with hexavalent molybdenum to form a yellow-orange colored chelate in direct proportion to the hexavalent molybdenum concentration.

1. Vacu-vials is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038

2. Haight, G. P.; Paragamian, V., *Analytical Chemistry*, p. 32, 642, 1960

3. Onishi, H.; Sandell, E. B., *Photometric Determination of Trace Metals*, 4th ed., Part 1, p. 295, 1978

Safety Information

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

