

Cyanide CHEMets® Kit

K-3810/R-3810: 0 - 0.1 & 0.1 - 1 ppm

Safety Information

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

Sample Pretreatment

Before analysis, adjust sample pH to between 7.5 and 11 using a solution of sodium hydroxide or hydrochloric acid. Use extreme caution not to go below pH 7.0 for samples that may contain cyanide as this could result in the evolution of toxic cyanide gas.

Test Procedure

1. Fill the sample cup to the 10 mL mark with the sample to be tested (fig. 1).
2. Using the syringe, add 1.0 mL of S-3805 Neutralizer Solution. Stir to mix the contents of the cup.
3. Shake the S-3801 Activator Solution and then add 5 drops (fig. 2). Stir to mix the contents of the cup.
4. Place the CHEMet 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 **15 minutes** after snapping the tip.

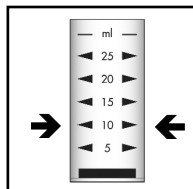


Figure 1

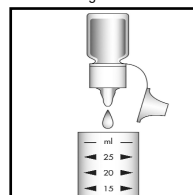


Figure 2

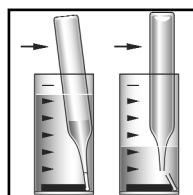


Figure 3

7. Obtain a test result using the appropriate comparator.

- a. **Low Range Comparator (fig. 4):** Place the ampoule, flat end first, into the comparator. Hold the comparator up toward a source of light and view from the bottom. Rotate the comparator until the best color match is found.

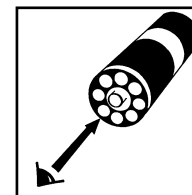


Figure 4

- b. **High Range Comparator (fig. 5):** Place the ampoule between the color standards until the best color match is found.

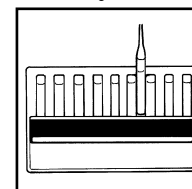


Figure 5

Test Method

The Cyanide CHEMets®¹ test method employs the isonicotinic-barbituric acid chemistry.² Cyanide reacts with chlorine to form cyanogen chloride (CNCl), which then reacts with a stabilized isonicotinic-barbituric acid reagent to form a blue colored complex in proportion to the cyanide concentration.

Sulfides, aldehydes and heavy metals will cause low test results. Thiocyanate will cause high test results. To determine total cyanide and to remove most interfering substances a preliminary distillation step is required.

1. CHEMets is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038
2. S. Nagashima, Spectrophotometric Determination of Cyanide with Isonicotinic Acid and Barbituric Acid, International Journal of Environ. Anal. Chem., 1981, Vol. 10, pp. 99-106

