

# Cyanide CHEMets® Kit

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

## Safety Information

Read MSDS (available at [www.chemetrics.com](http://www.chemetrics.com)) 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 4 mL mark with the sample to be tested (fig 1).
2. Add 16 drops of A-3800 Neutralizer Solution (fig 2). Cap the sample cup and shake it to mix the contents well.
3. Shake the A-3801 Activator Solution and then add 2 drops (fig 2). Cap the cup and shake it to mix the contents well.
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 and wait **15 minutes** for color development.

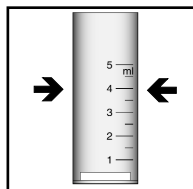


Figure 1

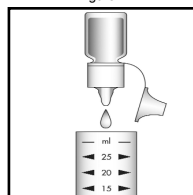


Figure 2

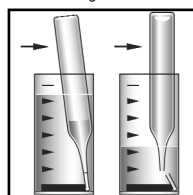


Figure 3

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.

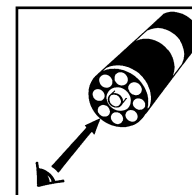


Figure 4

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

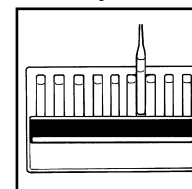


Figure 5

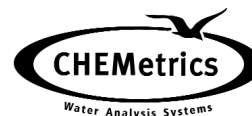
## Test Method

The Cyanide CHEMets®<sup>1</sup> test method employs the isonicotinic-barbituric acid chemistry.<sup>2</sup> 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 CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. S. Nagashima, Spectrophotometric Determination of Cyanide with Isonicotinic Acid and Barbituric Acid, Environ. Anal. Chem., 1981, Vol. 10, pp. 99-106

Visit [www.chemetrics.com](http://www.chemetrics.com) to view product demonstration videos.  
Always follow the test procedure above to perform a test.



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