

Nitrate CHEMets® Kit

K-6905: 0 - 3.0 ppm N

Safety Information

Read MSDS before performing this test procedure. Wear safety glasses and disposable gloves.

Test Procedure

1. Fill the **reaction tube** (green screw cap tube) to the 15 mL mark with the sample to be tested.
2. Empty the contents of one Zinc Foil Pack into the reaction tube (fig 1). Cap the reaction tube and shake it vigorously for exactly **2 minutes**.

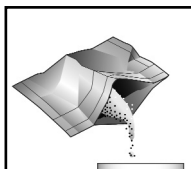


Figure 1

3. Add 10 drops of A-6901 Acidifier Solution to the empty **25 mL sample cup** (fig. 2).
4. Pour the treated sample from the reaction tube into the sample cup, being careful not to transfer any solid material to the sample cup.

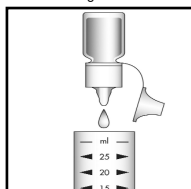


Figure 2

NOTE: Getting a small amount of solid material into the sample cup will not affect test results.

5. Place the CHEMet ampoule in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill leaving a small bubble to facilitate mixing (fig 3).
6. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end. Dry the ampoule and wait **10 minutes** for color development.

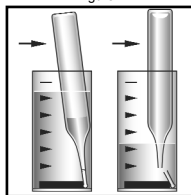


Figure 3

7. Hold the comparator in a nearly horizontal position while standing directly beneath a source of light. Place the ampoule between the color standards moving it from left to right along the comparator until the best color match is found (fig 4). If the color of the ampoule is between two color standards an estimate can be made.

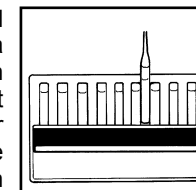


Figure 4

NOTE: To convert to ppm (mg/Liter) nitrate as NO₃, simply multiply test results by 4.4.

Test Method

The Nitrate CHEMets^{fi} 1 test kit employs the zinc reduction method.^{2,3,4,5} Nitrate is reduced to nitrite in the presence of zinc. In an acidic solution, the nitrite diazotizes with a primary aromatic amine and then couples with another organic molecule to produce a highly colored azo dye. The resulting pink-orange color is proportional to the nitrate concentration. Results are expressed in ppm (mg/Liter) nitrate-nitrogen, NO₃-N.

This test method is applicable to industrial wastewater, drinking water, surface water and seawater. It can also be used to measure nitrate in the presence of up to 0.5 ppm (mg/Liter) nitrite-nitrogen (NO₂-N) by difference using the following procedure:

- A. Fill the 25 mL sample cup to the 15 mL mark with sample.
- B. Follow steps 5 - 7 of the test procedure to obtain a test result for nitrite-nitrogen in the sample.
- C. If the test result obtained for nitrite-nitrogen is less than or equal to 0.5 ppm, this test result can be subtracted from a nitrate-nitrogen test result (obtained on a separate aliquot of sample by following the full test procedure, Steps 1 - 7) to obtain accurate results for nitrate-nitrogen in the presence of low levels of nitrite-nitrogen.

1. CHEMets is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 21st ed., method 4500-NO₃-E (2005)
3. ASTM D 3867 - 04, Nitrite-Nitrate in Water, Test Method B
4. EPA Methods for Chemical Analysis of Water and Wastes, method 353.3 (1983)
5. Nelson J. L., Kurtz, L. T., and R. H. Bray (1954) Rapid Determination of Nitrates and Nitrites. Analytical Chem., V26, p 1081-2



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