

Nitrate CHEMets® Kit

K-6905/R-7002 & A-6905: 0 - 3.4 ppm N

Test Procedure

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

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

5. Place the CHEMet ampoule, tip first, into the sample cup. Snap the tip. The ampoule will fill leaving a bubble for mixing (fig. 3).
6. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
7. Dry the ampoule. Obtain a test result **10 minutes** after snapping the tip.
8. Use the 0 - 3.4 concentration scale on the comparator label. Obtain a test result by placing the ampoule between the color standards until the best color match is found (fig. 4).

NOTE: To convert to ppm nitrate (NO_3), multiply the test result by 4.4.

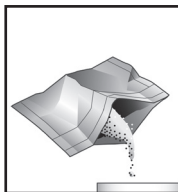


Figure 1

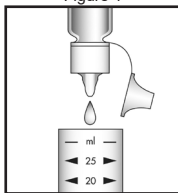


Figure 2

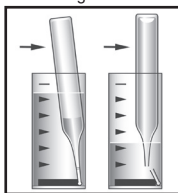


Figure 3

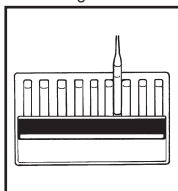


Figure 4

Test Method

The Nitrate CHEMets®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 pink-orange colored azo dye. The resulting color is proportional to the nitrate concentration.

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 ($\text{NO}_2\text{-N}$) by difference using the following procedure:

- A. Fill the 25 mL sample cup to the 15 mL mark with sample.
- B. Follow steps 5 - 8 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 - 8) to obtain accurate results for nitrate-nitrogen in the presence of low levels of nitrite.

1. CHEMets is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No.3,634,038
2. APHA Standard Methods, 23rd ed., Method 4500- NO_3^- -E - 2016
3. ASTM D 3867 - 09, 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

Safety Information

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

