

# Nitrate CHEMets®

## 0 - 3 ppm

### Test Procedure

1. Fill the reaction tube to the 15 mL mark with the sample.
2. Empty the contents of one Cadmium Foil Pack into the reaction tube (fig 1). Cap the reaction tube and shake it vigorously for exactly **3 minutes**. Allow the sample to sit undisturbed for **2 minutes**.
3. Pour 10 mL of the sample into the sample cup (fig 2), being careful not to transfer any cadmium particles to the sample cup.
4. 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).
5. Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each time. Wipe all liquid from the exterior of the ampoule. Wait **10 minutes** for color development.
6. Hold the high range comparator in a nearly horizontal position while standing directly beneath a bright source of light. Place the CHEMet 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 CHEMet ampoule is between two color standards, a concentration estimate can be made.

**NOTE:** To convert to ppm (mg/Liter) nitrate as NO<sub>3</sub>, simply multiply test results by 4.4.

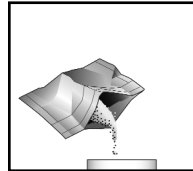


Figure 1

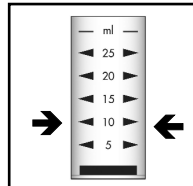


Figure 2

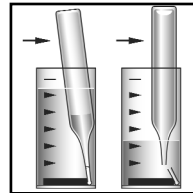


Figure 3

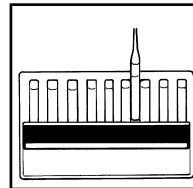


Figure 4

### Test Method

The Nitrate CHEMets®<sup>1</sup> test method employs the cadmium reduction method.<sup>2,3,4</sup> Nitrate is reduced to nitrite in the presence of cadmium. 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) NO<sub>3</sub>-N.

Samples containing nitrite will give erroneous, high test results. Samples containing in excess of 2000 ppm chloride will give low test results. Certain metals, chlorine, oil and grease will also give low test results.

1. CHEMets is a registered trademark of CHEMetrics, Inc. U.S. Patent No. 3,634,038
2. APHA Standard Methods, 20th ed., p. 4-117, method 4500-NO<sub>3</sub><sup>-</sup> E (1998)
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)

### Safety Information

Read MSDS before performing this test procedure. Wear safety glasses.

### Reorder Information

### Cat. No.

**Test Kit, complete** . . . . . *K-6904*  
**Refill, 30 CHEMet ampoules & 30 cadmium foil packs** . . *R-6902*  
**Sample Cup, 25 mL, package of six** . . . . . *A-0013*  
**Reaction Tube and Cap, package of six** . . . . . *A-0187*  
**Comparator, 0-3 ppm** . . . . . *C-6904*

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