Ammonia Vacu-vials® Kit

K-1413: 0 - 3.00 ppm N (Prog. # 12)
0 - 60.0 ppm N (Prog. # 13)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, follow the manufacturer's instructions to set the wavelength to **610 nm**. and to zero the instrument using the ZERO ampoule supplied.

Sample Temperature

Sample temperatures that deviate significantly from 20°C (68°F) may introduce test result bias.

0 - 3 ppm Test Procedure

1. Fill the sample cup to the 20 mL mark with the sample to be tested (fig. 1).
2. Add 4 drops of S-1404 Stabilizer Solution (fig. 2).
3. Add 4 drops of S-1405 Catalyzer Solution (green) (fig. 2).
4. Add 4 drops of S-1406 Activator Solution (blue) (fig. 2).
5. **Immediately** place the Vacu-vial ampoule, tip first, into the sample cup. Stir briefly to mix the contents of the cup, then 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 **5 minutes** after snapping the tip.

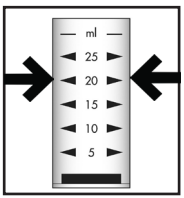

Figure 1

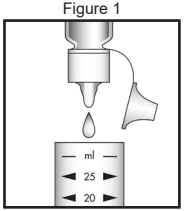

Figure 2

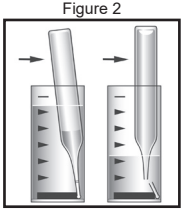
Figure 3

8. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) ammonia-nitrogen (NH_3-N).

NOTE: If using a spectrophotometer that is not pre-calibrated for CHEMetrics products, then use the appropriate **equation below** or the **Concentration Calculator** on the website.

0 - 3 ppm: ppm = 2.22 (abs) - 0.07
0 - 60 ppm: ppm = 44.4 (abs) - 1.4

0 - 60 ppm Test Procedure

1. Using the syringe provided, obtain **1.0 mL** of the sample to be tested and dispense it into the empty sample cup.
2. Dilute the contents of the sample cup to the **20 mL** mark with distilled water.
3. Perform the 0 - 3 ppm Test Procedure, beginning with Step # 2.

Test Method

The Ammonia Vacu-vials®[1] test kit employs the Hydroxybenzyl alcohol (HBA) chemistry.[2] Free ammonia reacts with hypochlorite to form monochloramine. Monochloramine reacts with HBA, in the presence of sodium nitro-ferricyanide, to form a green colored complex. This test method measures the sum of free ammonia and monochloramine. High levels of ammonia can produce false low or off color test results. Dilute the sample if the ammonia concentration is suspected to significantly exceed the test range.

1. Vacu-vials is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038
2. Krom, Michael D., Spectrophotometric Determination of Ammonia: A study of a Modified Berthelot Reduction Using Salicylate and Dichloroisocyanurate, The Analyst, V105 pp. 305-316, 1980.

Safety Information

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

Feb. 25, Rev. 6