

K-6803 Monochloramine Vacu-vials® Kit

V-2000 Photometer: 0 - 15.0 ppm $\text{NH}_2\text{Cl}-\text{Cl}_2$ (Prog. # 117)

V-3000 Photometer: 0 - 8.00 ppm $\text{NH}_2\text{Cl}-\text{Cl}_2$ (Prog. # 117)

Spectrophotometer: 0 - 8.00 ppm $\text{NH}_2\text{Cl}-\text{Cl}_2$

Safety Information

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

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 690 nm and to zero the instrument using the ZERO ampoule supplied.

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. **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
5. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.

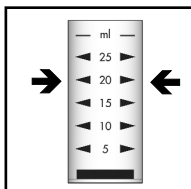


Figure 1

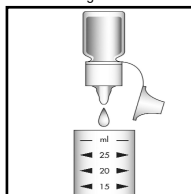


Figure 2

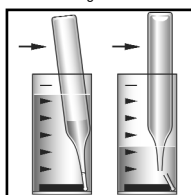


Figure 3

6. Dry the ampoule. Obtain a test result **5 minutes** after snapping the tip.

Color development is impacted by sample temperature. For best accuracy, use the chart below to determine the optimal color development wait time.

Sample Temperature (C°)	Color Development Time (minutes)
5	11
6 - 7	10
8 - 10	9
11 - 13	8
14 - 16	7
17 - 19	6
20 - 24	5
25 - 29	4
30 - 35	3

7. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) monochloramine as chlorine ($\text{NH}_2\text{Cl}-\text{Cl}_2$).

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.

$$\text{ppm} = 4.42(\text{abs}) + 0.05$$

NOTE: To convert to ppm $\text{NH}_2\text{Cl}-\text{N}$ (monochloramine as nitrogen), divide test result by 5.

Test Method

The Monochloramine Vacu-vials®¹ test kit employs the Hydroxybenzyl alcohol (HBA) chemistry.² Monochloramine reacts with HBA, in the presence of sodium nitro-ferricyanide, to form a green colored complex. This test method measures monochloramine as chlorine ($\text{NH}_2\text{Cl}-\text{Cl}_2$).

CHEMetrics offers ammonia test kits employing the HBA chemistry that can be used in conjunction with this kit to determine free ammonia concentration. See technical bulletin on the website for details.

Monochloramine levels above the test range may cause a deep blue-green color to develop. High levels of residual ammonia can produce false low test results.

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.