K-6803 Monochloramine Vacu-vials® Kit

V-2000 Photometer: 0 - 15.0 ppm NH_2Cl-Cl_2 (Prog. # 117)
V-3000 Photometer: 0 - 8.00 ppm NH_2Cl-Cl_2 (Prog. # 117)
Spectrophotometer: 0 - 8.00 ppm NH_2Cl-Cl_2

Safety Information

Read SDS (available at www.chemetrics.com) 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, set the wavelength to 690 nm. A sealed ZERO ampoule is supplied in this kit for zeroing when the sample is colorless and not turbid. For improved accuracy with colored or turbid samples, Sample Zeroing Accessory Pack, Cat. # A-0025 is recommended. Fill the A-0025 test tube with the sample and use this in place of the supplied ZERO ampoule to zero the instrument.

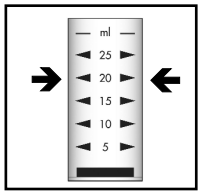

Figure 1

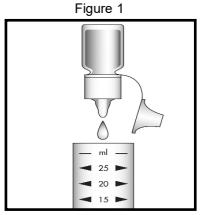

Figure 2

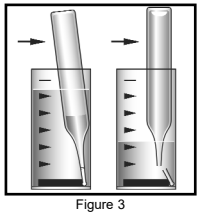
Figure 3

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 A-6804 Stabilizer Solution. Fig. 2
3. Add 4 drops of A-6805 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.
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 (NH_2Cl-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** found under the Support tab at *www.chemetrics.com*.

   $$ppm = 4.42(abs) + 0.05$$

   NOTE: To convert to ppm NH_2Cl-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 (NH_2Cl-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. Contact technical@chemetrics.com 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 CHEMetrics, Inc. 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.