

Program ID #006

Chlorine Dioxide Auto-Test™

0.80 – 12 mg/L

The Orion AQUAfast IV Auto-Test kit is intended for use with the Orion AQ4000 Advanced Colorimeter. For detailed setup and measurement procedures for the Orion AQ4000, consult your colorimeter manual.

NOTE: Before testing, zero the Orion AQ4000 using a sealed zero vial from the Orion AQUAfast IV Zero Auto-Test kit, AQ4ZER. If the sample is colored, use the sample cup provided to dilute the sample using the following steps: 1) Add 10 mL of sample and 5 mL of DI water to the sample cup for a total of 15 mL. 2) Transfer the diluted sample to a clean, dry screw top vial from the Orion Zero Auto-Test kit and use that vial to zero the meter. 3) See the colorimeter manual for details on the Zero Procedure for the Orion AQ4000. Discard the diluted sample after the zero procedure. Repeat for each colored sample. Re-zero with the sealed zero vial before testing any colorless samples.

Safety Information

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

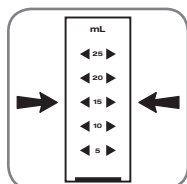
Test Procedure

Figure 1

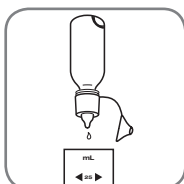


Figure 2

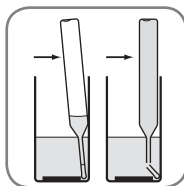


Figure 3

1. Fill the sample cup to the 15 mL mark with the sample. **See Fig 1.**
2. Add 6 drops of Chlorine Dioxide Neutralizer solution. **See Fig 2.** Stir briefly with the tip of the cuvette to mix the contents of the sample cup.
3. Place the Auto-Test cuvette in the sample cup. Snap the tip by pressing the cuvette against the side of the cup. The cuvette will fill, leaving a small bubble to facilitate mixing. **See Fig 3.**
4. Mix the contents of the cuvette by inverting it several times, allowing the bubble to travel from end to end each time. Tap the bottom of the cuvette on a hard surface to cause any tiny bubbles that have collected on the cuvette wall to rise to the top of the liquid in the cuvette. Wipe all liquid from the exterior of the cuvette.
5. Insert cuvette into Orion AQ4000. Align the ▼ on the Auto-Test cuvette with the ◆ on the adapter to obtain a continuous beeping and view ***** across the display. If ***** and beeping is not observed, rotate cuvette right or left to initiate the measurement.
6. Immediately cover the cuvette with the cuvette cover.
7. The Orion AQ4000 will begin a 1 minute countdown. After the countdown is completed, the Orion AQ4000 will automatically proceed to the measure mode.
8. Record the concentration reading from the Orion AQ4000 display as either mg/L or ppm ClO₂ or log measurement into the data logger by pressing the **log** key.

Test Method

The Chlorine Dioxide Auto-Test method employs the DPD chemistry.^{1,2} Chlorine dioxide oxidizes DPD (N,N-diethyl-p-phenylenediamine) to form a pink colored species in direct proportion to the chlorine dioxide concentration. Interference from free Cl₂ is prevented (up to 6 ppm Cl₂) by the addition of glycine to the sample. Glycine converts free chlorine to chloroaminoacetic acid. Results are expressed in ppm (mg/Liter) ClO₂. Bromine, iodine, ozone and halogenating agents will produce high test results. Chlorine dioxide, at > 500 ppm may prevent color development.

1. APHA Standard Methods, 18th ed., p. 4-45, method 4500-Cl G (1992)
2. EPA Methods for Chemical Analysis of Water and Wastes, method 330.5 (1983)

Ordering Information

Cat. No.	Description
AC4099	Orion AQUAfast IV Chlorine Dioxide Auto-Test Kit
AQ4ZER	Orion AQUAfast IV Zero Vial Auto-Test Kit
AQ4CBL	Orion AQUAfast IV RS232 Cable
AQ4000	Orion AQUAfast IV Advanced Colorimeter

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