

The Thermo Orion AQUAfast II Tablet Chemistries Reagents can be used with the Thermo Orion AQ4000 Advanced Colorimeter. For detailed setup and measurement procedures for the AQ4000, consult your colorimeter manual.

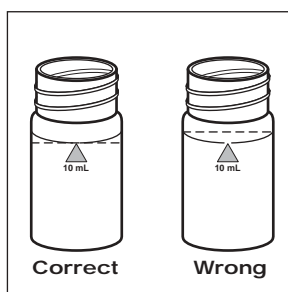
**NOTE:** The AQ4000 must be zeroed using a vial filled with sample. If the sample is colored, use actual sample. Use the 24 mm glass vials from Thermo Orion, Cat. No. AC2CUV.

### Safety Information:

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

### AQUAfast IV Zero:

1. Turn the colorimeter on by pressing the **power** key.
2. Press **prgm** key and select program 133 for the Chlorine Free and Total measurements. Press **yes** key.
3. Fill a clean, dry 24 mm vial with 10 mL of sample. See **Fig 1**.



**Figure 1**

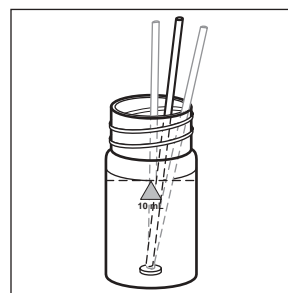
4. Screw the cap onto the vial and wipe the exterior of the vial to ensure it is clean and dry.
5. Insert the zero vial into the AQ4000 sample chamber. No adapters are required. Align the ▲ on the vial to the ▲ on the colorimeter. Cover the vial with the vial cover.
6. Press the **zero** key. The "zero" icon will light up on the upper right hand corner.
7. "WAIT" is then displayed. The result is displayed as "0.000" A2 CL2 for free or total chlorine.
8. The colorimeter is now zeroed and ready for measurements.

**NOTE:** For best results, pipette samples and zero using the sample before each measurement. The AQ4000 must be zeroed before each method.

### Test Procedure:

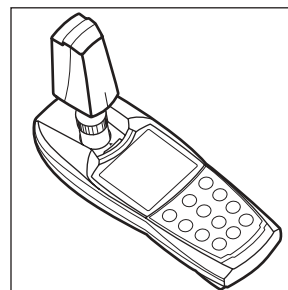
#### A) Free Chlorine

1. Using program 133, Empty the 24 mm vial from the zero procedure.
2. Add one Chlorine Free DPD No. 1 tablet to the sample vial. Crush the tablet with a clean stir rod, than add 10 mL of sample to vial. See **Fig 2**. Mix well to dissolve the tablet completely. Cap the vial tightly and wipe the sides of the vial. A pink magenta color will develop if free chlorine is present.



**Figure 2**

3. Immediately place and align the prepared sample into the AQ4000 sample chamber. Cover with the vial cover. See **Fig 3**.



**Figure 3**

4. Press **meas** key for sample measurement. A one-minute countdown will begin. The result in mg/L or ppm free chlorine will be displayed.

### B) Total Chlorine

1. Using program 133, remove the sample vial from the Free Chlorine method above.
2. Add one DPD No. 3 tablet to the colored test solution and crush the tablet with a clean stir rod and mix well to dissolve the tablet completely. See **Fig 2**. Cap the vial tightly and wipe the sides of the vial.
3. Immediately place and align the prepared sample into the AQ4000 sample chamber. Cover with the vial cover. See **Fig 3**.
4. Press **meas** key for sample measurement. A one-minute countdown will begin. The result in mg/L or ppm total chlorine will be displayed.

#### Combined Chlorine Calculation:

Combined Chlorine = Total Chlorine – Free Chlorine

### C) Total Chlorine (using DPD No. 4)

If a reading of free chlorine is not required, total chlorine can be measured directly by using a DPD No. 4 tablet only. If not already done, perform the Zero Calibration as described above.

1. Using program 133, and an empty clean and dry 24 mm vial.
2. Add one DPD No. 4 tablet to the empty vial and crush the tablet with a clean stir rod. Add 10 mL of sample, then mix well to dissolve the tablet completely. See **Fig 2**. Cap the vial tightly and wipe the sides of the vial.
3. Immediately place and align the prepared sample into the AQ4000 sample chamber. Cover with the vial cover. See **Fig 3**.
4. Press **meas** key for sample measurement. A one-minute countdown will begin. The result in mg/L or ppm total chlorine will be displayed.

### Method Notes:

1. Observe application options, analysis regulations and matrix effects of methods. Reagent tablets are designed for use in chemical analysis only and should be kept well out of the reach of children. Ensure proper disposal of reagents.
2. Labeled product ranges may differ on AQ4000. Use instruction sheet test range.

To avoid errors in photometric measurements, thoroughly clean and dry vials, caps and stir rod after each analysis in order to prevent carry over errors. It is good practice to perform the "zero" and the "test" with the same capped vial. Make sure there are no bubbles on the inside walls of the vial. This can lead to incorrect measurements. If there are bubbles on the inside walls, swirl the capped vial. Always add the reagent tablets to the sample straight from the foil without touching them with your fingers.

Material Safety Data Sheets are available on request or see website.

### Ordering Information

Cat. No.	Description
AC2070	AQUAfast II Chlorine Free and Total, 50 tests
AC2071	AQUAfast II Chlorine Free, 100 tests
AC2072	AQUAfast II Chlorine Total, 100 tests
AC2073	AQUAfast II Chlorine Standards Kit
AC2CUV	24 mm Vials, 4 pack
AQ4CBL	AQUAfast IV RS232 Cable
AQ4000	AQUAfast IV Advanced Colorimeter

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