

Program ID #53

Iron, Ferro

0 - 3.00 mg/L

The Orion AQUAfast IV Powder Chemistries are intended for use with the Orion AQ4000 Advanced Colorimeter. For detailed setup and measurement procedures for the Orion AQ4000, consult your colorimeter manual.

NOTE: The Orion 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 AC2V24.

Safety Information

Read MSDS before performing this test procedure. Wear safety glasses and gloves. Material Safety Data Sheets are available on request or see website.

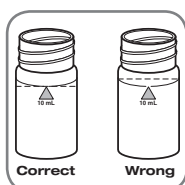
AQUAfast IV Zero

Figure 1

1. Turn the colorimeter on by pressing the **power** key.
2. Press **prgm** and select program 53. Press **yes** key.
3. Fill a clean, dry 24 mm vial with 10 mL of sample. **See Fig 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 Orion 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” A4P Fe for ferro.
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 Orion AQ4000 must be zeroed before each method.

Test Procedure

Figure 2



Figure 3



Figure 4

1. Using program 53, use the 24 mm vial with 10 mL of sample from the zero procedure. **See Fig 1.**
2. Take one Ferro Powder Pack, tap down gently and tear open in the direction of the text. Add the contents to the sample vial. **See Fig 2.**
3. Screw the cap onto the vial tightly and swirl vigorously to dissolve the powder. An orange color will develop if ferro iron is present. **See Fig 3.**
4. Immediately place the prepared sample into the Orion AQ4000 sample chamber. Cover with the vial cover. **See Fig 4.**
5. Press meas key for sample measurement. A three-minute reaction countdown will begin. The result in mg/L or ppm ferro will be displayed.

NOTE: If the display flashes “overrng”, it is due to high iron levels. Dilute a fresh sample and repeat the test. Multiply the result by the dilution factor.

Test Method

The Iron, Ferro Chemistry employs the phenanthroline chemistry.^{1,2} Ferrous iron reacts with 1,10-phenanthroline to form an orange colored complex in direct proportion to the ferrous iron concentration. Various metals will produce high test results.

1. APHA Standard Methods, 18th Edition, Page 3-66, method 3500-Fe D (1992).

2. ASTM D 1068 – 88, Iron in Water, Test Method A.

Ordering Information

Cat. No.	Description
AC4P78	Orion AQUAfast IV Iron, Ferro Powder Chemistry, 100 tests
AC2V24	24 mm Vials, 12 pack
AQ4CBL	Orion AQUAfast IV RS232 Cable
AQ4000	Orion AQUAfast IV Advanced Colorimeter

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