

Program ID #059

Phosphorus, LR

0.07 - 2.5 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 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.

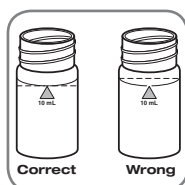
AQUAfast IV Zero

Figure 1

1. Turn the colorimeter on by pressing the **power** key.
2. Press **prgm** and select program 59. 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 PO₄ for phosphorus LR.
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 59, use the 24 mm vial with 10 mL of sample from the zero procedure. **See Fig 1.**
2. Take one Phos 3 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 shake the vial for 15 seconds to dissolve the powder. A blue color will form if phosphate is present. **See Fig 3.**
4. Immediately place the prepared sample into the AQ4000 sample chamber. Cover with the vial cover. **See Fig 4.**
5. Press **meas** key for sample measurement. A two-minute reaction countdown will begin. The result in mg/L or ppm Phosphate will be displayed.

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

Test Method

The Phosphorus LR Powder Chemistry employs the ascorbic acid method.¹ Orthophosphate is reacted with molybdate in an acid solution to form a phosphomolybdate complex. Ascorbic acid reduces the complex, giving a blue color. The blue color is directly proportional to the phosphorus concentration in the sample.

1. APHA Standard Methods, 18th Edition, Method 4500-PE (1992)

Ordering Information

Cat. No.	Description
AC4P95	Orion AQUAfast IV Phosphorus LR Powder Chemistry, 100 tests
AC2V24	24 mm Vials, 12 pack
AQ4CBL	Orion AQUAfast IV RS232 Cable
AQ4000	Orion AQUAfast IV Advanced Colorimeter

Environmental Instruments Water Analysis Instruments

166 Cummings Center
Beverly, MA 01915 USA

256463-001 Rev.A 0108

Toll Free: 1-800-225-1480
Tel: 1-978-232-6000
Dom. Fax: 1-978-232-6015
Int'l Fax: 978-232-6031
www.thermo.com/water

© 2008 Thermo Fisher Scientific Inc. All rights reserved.

