# Thermo Scientific Orion AQUAfast IV® AC4P29 Ampoules

## Program ID #052

# **Copper, Bicinchoninate**

0-5.00 ma/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**

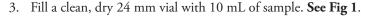
Read MSDS before performing this test procedure. Wear safety glasses and gloves. Material Safety Data Sheets are available on request or see website.

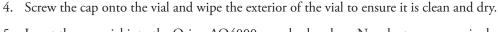
#### AQUAfast IV Zero

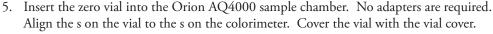
Figure 1

- 1. Turn the colorimeter on by pressing the **power** key. Press prgm and select program 52. Press yes key.









- 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 CU 1 for copper.
- 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 52, use the 24 mm vial with 10 mL of sample from the zero procedure. See Fig 1.
- 2. Take one Cu 1 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 purple color will develop if copper 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 two-minute reaction countdown will begin. The result in mg/L or ppm copper will be displayed.

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





#### **Test Method**

The Copper Powder Chemistry employs the bicinchoninate method.<sup>1</sup> The salt of the bicinchoninic acid forms a purple colored complex on reaction with the copper. The purple color will be proportional to the copper concentration in the sample.

1. Adaptation of EPA approved method: FR, 45 (105) 36166 (May 29,1980).

# **Ordering Information**

| Cat. No. | Description  |
|----------|--|
| AC4P29   | Orion AQUAfast IV Copper 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 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.

