

Program ID #55

Manganese, High Range

0.30 - 3.0 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 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.

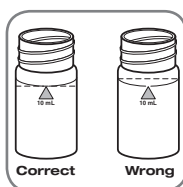
AQUAfast IV Zero

Figure 1

1. Turn the colorimeter on by pressing the **power** key.
2. Press **prgm** and select program 55. 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 Mn for manganese.
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 55, use the 24 mm vial with 10 mL of sample from the zero procedure. **See Fig 1.**
2. Take one Manganese Citrate Buffer 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. A violet color will develop if manganese 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.**
7. Press **meas** key for sample measurement. A five-minute reaction countdown will begin. The result in mg/L or ppm manganese will be displayed.

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

Test Method

The Manganese Chemistry employs the sodium periodate reaction.¹ Manganese is oxidized to permanganate in the presence of sodium periodate, after buffering the sample slightly. The purple color is proportional to the manganese concentration in the sample. Reducing agents are interferences.

1. APHA Standard Methods, 14th Edition, Page 227, method 314C (1975).

Ordering Information

Cat. No.	Description
AC4P55	Orion AQUAfast IV Manganese 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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