Program ID #56

Molybdenum, Molybdate HR

0-40.0 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 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

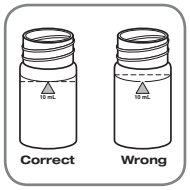

Figure 1

1. Turn the colorimeter on by pressing the **power** key.
2. Press **prgm** key and select program 56. 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 s on the vial to the s 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 MO H for molybdenum.
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

1. Using program 56, use the 24 mm vial with 10 mL of sample from the zero procedure. **See Fig 1**.
2. Take one Molybdenum HR1 Powder Pack, tap down gently and tear open in the direction of the text. Add the contents to the sample vial. **See Fig 2**. Screw the cap onto the vial and invert the vial several times to dissolve the powder. **See Fig 3**.
3. Take one Molybdenum HR_2 Powder Pack, tap down gently and tear open in the direction of the text. Remove the cap and add the contents to the sample vial. **See Fig 2**. Screw the cap onto the vial and invert the vial several times to dissolve the powder. **See Fig 3**.
4. Take one Molybdenum HR_3 Powder Pack, tap down gently and tear open in the direction of the text. Remove the cap and add the contents to the sample vial. **See Fig 2**. Screw the cap onto the vial and invert the vial several times to dissolve the powder. **See Fig 3**.
5. This is the prepared sample. A yellow color will form if molybdenum is present.

Figure 4

6. Immediately place the prepared sample into the 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 molybdenum will be displayed.

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

Test Method

The molybdenum, molybdate powder chemistry employs a mercaptoacetic acid method. Two powders, molybdenum 1 and 2 are added to buffer the ph and masks interferences with a chelating agent. Molybdenum powder 3 adds mercaptoacetic acid and forms a yellow color on reaction with molybdate, molybdenum. The yellow color will be proportional to the molybdenum concentration in the sample.

1. Adapted from anal. Chem., 25(9) 1363 (1953).

Ordering Information

Cat. No.	Description
AC4P42	Orion AQUAfast IV Molybdenum, Molybdate Hr 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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