Molybdenum 3.3

Range(s): 0-3.30 ppm Mo, 0-5.50 ppm MoO_4^{2-}, 0-7.10 ppm Na_2MoO_4

Procedure

1. Turn on the Colorimeter.
2. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Molybdenum 3.3 using ◀▶.
3. Select Molybdenum 3.3 using ▲▼; then press ENTER ⊙.
4. Select a chemical form (Mo, MoO_4, or Na_2MoO_4) for expression of test results using ▲▼.
5. Rinse and fill 25 mm sample cell to 10 mL mark with sample.
6. Add 0.5 mL Molybdenum 3.3 - Reagent A; then cap and swirl to mix thoroughly.
7. Insert sample cell into sample cell compartment. Align marks per User's Manual.
8. Select ZERO using ◀▶; then press ENTER ⊙. Zero will be displayed.
9. Remove sample cell from sample cell compartment; then remove cap.
10. Add 0.5 mL Molybdenum 3.3 - Reagent B; then cap and swirl to mix thoroughly.
11. Insert sample cell into sample cell compartment. Align marks.
12. Select TIMER using ◀▶; then press ENTER ⊙.
13. Select START using ◀▶; then press ENTER ⊙. (A 2-minute [02:00] countdown will begin.) Immediately select AUTO using ◀▶; then press ENTER ⊙.
14. When the timer beeps, the instrument will read the sample and the result will be displayed.

Interferences

Bromine > 6 ppm – negative interference
To remove interference: Add 1 drop Thiosulfate N/10 (R-0697) to sample cell prior to testing.

Chlorine > 6 ppm – negative interference
To remove interference: Add 1 drop Thiosulfate N/10 (R-0697) to sample cell prior to testing.

Iron, Ferric > 7 ppm – positive interference
To remove interference: Add 1 drop EDTA Solution (R-0814) to sample cell prior to testing.

Iron, Ferrous > 7 ppm – positive interference
To remove interference: Add 1 drop EDTA Solution (R-0814) to sample cell prior to testing.

Nitrite > 100 ppm – negative interference
To remove interference: Treat a 25 mL sample with 0.1 g Sulfamic Acid Powder (R-0837). Swirl the sample to dissolve the Sulfamic Acid Powder and evolve nitrogen. After 5 minutes, add Sodium Hydroxide Reagent (R-0740) to adjust pH to 4-8. Take a 10 mL portion and follow test procedure above.

The following analytes were tested to the levels listed and found not to cause any interference up to the specified values:

Alkalinity, Total ($CaCO_3$) – 1000 ppm
Azole (BT) – 5 ppm
Azole (TT) – 5 ppm
Chloride – 1000 ppm
Copper – 5 ppm
Fluoride – 10 ppm
Hardness, Calcium ($CaCO_3$) – 1000 ppm
Nitrate – 2000 ppm
Phosphate – 20 ppm
Phosphonate – 25 ppm
Polymer – 20 ppm
Polyphosphate – 6 ppm
Silica – 150 ppm
Sulfate – 1000 ppm
Sulfite – 100 ppm
Zinc – 5 ppm

(over)

Test Method

Ternary Complex
Under slightly acidic conditions, pyrocatechol violet produces a blue-colored complex with molybdate that is proportional to the molybdenum concentration in a sample.

Estimated Detection Limit

0.03 ppm Mo

Precision

Using a single lot of each reagent and a standard solution of 2.0 ppm Mo, an individual analyst obtained a standard deviation with the instrument of ± 0.01 ppm Mo.

Application

Industrial Water and Wastewater

Ordering Info

Reagent Pack

K-8003 Molybdenum 3.3
Formulated for exclusive use with Taylor's TTi® Colorimeter.

Reagent Pack Components

R-8003A Molybdenum 3.3 - Reagent A
R-8003B Molybdenum 3.3 - Reagent B

Optional Reagents & Accessories

R-0697 Thiosulfate N/10
R-0740 Sodium Hydroxide Reagent
R-0814 EDTA Solution
R-0837 Sulfamic Acid Powder

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