# Molybdenum 60

**Range(s): 0-60.0 ppm Mo, 0-100 ppm $MoO_4^{2-}$, 0-130 ppm $Na_2MoO_4$**

## Procedure

Note: When testing multiple samples simultaneously, a separate sample cell with an unreacted sample of the water tested must be used to zero the colorimeter. Please note that varying the test procedure from the original can affect the precision of the test.

1. Turn on the Colorimeter.
2. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Molybdenum 60 using ◀▶.
3. Select Molybdenum 60 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; then cap.
6. Insert sample cell into sample cell compartment. Align marks per User's Manual.
7. Select ZERO using ◀▶; then press ENTER ⊙. Zero will be displayed.
8. Remove sample cell from sample cell compartment; then remove cap.
9. Using the 0.05 g dipper spoon, add 1 level dipper Molybdenum 60 - Reagent A; then cap and swirl to dissolve powder.

Note: Addition of Molybdenum 60 - Reagent A can be omitted if certain sample does not contain nitrite.

10. Add 1 mL Molybdenum 60 - Reagent B; then swirl to mix.
11. Add 1 mL Molybdenum 60 - Reagent C; then swirl to mix.
12. Using the 0.05 g dipper spoon, add 2 heaping dippers Molybdenum 60 - Reagent D; then cap and swirl to dissolve powder.
13. Invert sample cell once, slowly, to remove any air bubbles present on the sides of sample cell.
14. Insert sample cell into sample cell compartment. Align marks.
15. Select TIMER using ◀▶; then press ENTER ⊙.
16. Select START using ◀▶; then press ENTER ⊙. (A 1-minute [01:00] countdown will begin.) Immediately select AUTO using ◀▶; then press ENTER ⊙.
17. When the timer beeps, the instrument will read the sample and the result will be displayed.

## Interferences

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
Bromine – 5 ppm
Chloride – 1000 ppm
Chlorine – 5 ppm
Copper – 5 ppm
Fluoride – 10 ppm
Hardness, Calcium ($CaCO_3$) – 1000 ppm
Iron, Ferric – 10 ppm
Iron, Ferrous – 10 ppm
Nitrate – 2000 ppm
Nitrite – 2000 ppm
Phosphate – 100 ppm
Phosphonate – 20 ppm
Polymer – 1000 ppm
Polyphosphate – 5 ppm
Silica – 150 ppm
Sulfate – 1000 ppm
Sulfite – 100 ppm
Zinc – 5 ppm

(over)

## Test Method

Thioglycolate

Under acidic conditions, molybdenum, in the presence of an oxidizing agent, is converted to $Mo^{6+}$. In this form, molybdenum reacts with thioglycolate to produce a bright yellow color that is proportional to the molybdenum concentration in a sample.

## Estimated Detection Limit

0.7 ppm Mo

## Precision

Using a single lot of reagent and a standard solution of 25 ppm Mo, an individual analyst obtained a standard deviation with the instrument of ± 0.4 ppm Mo.

## Application

Industrial Water

## Ordering Info

**Reagent Pack**

K-8028 Molybdenum 60

Formulated for exclusive use with Taylor's TTi® Colorimeter.

**Reagent Pack Components**

R-8028A Molybdenum 60 - Reagent A
R-8028B Molybdenum 60 - Reagent B
R-8028C Molybdenum 60 - Reagent C
R-8028D Molybdenum 60 - Reagent D

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