

Silica 60

Range(s): 0-60.0 ppm SiO₂



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.

Note: Glassware that has not been properly cleaned may contaminate the sample and affect test results. Clean glassware thoroughly before use with phosphate-free detergent (available at local stores); then rinse thoroughly with DI Water (R-0833) or sample water.

1. Turn on the Colorimeter.
2. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Silica 60 using ◀▶.

3. Select Silica 60 using ▲▼; then press ENTER ⊙.
4. Rinse and fill 25 mm sample cell to 10 mL mark with sample; then cap.
5. Insert sample cell into sample cell compartment. Align marks per User's Manual.
6. Select ZERO using ◀▶; then press ENTER ⊙. Zero will be displayed.
7. Remove sample cell from sample cell compartment; then remove cap.
8. Add 0.5 mL Silica 60 - Reagent A; then swirl to mix.
9. Add 0.5 mL Silica 60 - Reagent B; then cap and swirl to mix thoroughly.
10. Select TIMER using ◀▶; then press ENTER ⊙.

11. Select START using ◀▶; then press ENTER ⊙. (A 5-minute [05:00] countdown will begin.)
12. When the timer beeps, remove cap from sample cell and add 0.5 mL Silica 60 - Reagent C; then cap and swirl to mix thoroughly.
13. Insert sample cell into sample cell compartment. Align marks.
14. Select TIMER 2 using ▲▼; then press ENTER ⊙. (A 2-minute [02:00] countdown will begin.) Immediately select AUTO using ◀▶; then press ENTER ⊙.
15. When the timer beeps, the instrument will read the sample and the result will be displayed.

Interferences

Phosphate ≥ 40 ppm – positive interference
 Phosphonate (HEDP) ≥ 20 ppm – positive interference
 Polymer > 500 ppm – negative interference
 Polyphosphate ≥ 5 ppm – positive interference

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

Alkalinity, Total (CaCO₃) – 200 ppm
 Azole (BT) – 10 ppm
 Azole (TT) – 10 ppm
 Chloride – 1000 ppm
 Chlorine – 5 ppm
 Copper – 5 ppm
 Fluoride – 5 ppm

Hardness, Calcium (CaCO₃) – 1250 ppm
 Iron, Ferric – 10 ppm
 Iron, Ferrous – 10 ppm
 Nitrate – 2000 ppm
 Nitrite – 2000 ppm
 Sulfate – 1000 ppm
 Sulfite – 100 ppm

Test Method

Silicomolybdate

Under acidic conditions, silica reacts with molybdate to produce a heteropoly acid, which is then reduced to form yellow-colored molybdosilicic acid proportional to the concentration of silica in a sample.

**Estimated
Detection Limit**

0.2 ppm SiO₂

Precision

Using a single lot of reagent and a standard solution of 40 ppm SiO₂, an individual analyst obtained a standard deviation with the instrument of ± 1.0 ppm SiO₂.

Application

Industrial Water

Ordering Info**Reagent Pack**

K-8007 Silica 60

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

Reagent Pack Components

R-8007A Silica 60 - Reagent A

R-8007B Silica 60 - Reagent B

R-8007C Silica 60 - Reagent C

Optional Reagents & Accessories

R-0833 DI Water



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