

Phosphate 70

Range(s): 0-70.0 ppm PO_4^{3-} , 0-22.8 ppm P, 0-52.3 ppm P_2O_5



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 with Hydrochloric Acid 3N (R-0737) followed by DI Water (R-0833) or sample water.

Note: Turbidity in sample may cause inaccurate results. If source water is turbid, filtration is recommended. Boiler water should be filtered for turbidity prior to testing.

1. Turn on the Colorimeter.
2. Select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Phosphate 70 using $\blacktriangleleft\blacktriangleright$.
3. Select Phosphate 70 using $\blacktriangle\blacktriangledown$; then press ENTER \odot .
4. Select a chemical form (PO_4 , P, or P_2O_5) for expression of test results using $\blacktriangle\blacktriangledown$.
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 $\blacktriangleleft\blacktriangleright$; then press ENTER \odot . Zero will be displayed.
8. Remove sample cell from sample cell compartment; then remove cap.
9. Add 0.5 mL Phosphate 70 - Reagent A; then cap and swirl to mix thoroughly.
10. Insert sample cell into sample cell compartment. Align marks.
11. Select TIMER using $\blacktriangleleft\blacktriangleright$; then press ENTER \odot .
12. Select START using $\blacktriangleleft\blacktriangleright$; then press ENTER \odot . (A 7-minute [07:00] countdown will begin.) Immediately select AUTO using $\blacktriangleleft\blacktriangleright$; then press ENTER \odot .
13. When the timer beeps, the instrument will read the sample and the result will be displayed.

Interferences

Alkalinity, Total ≥ 1200 ppm – negative interference
 Arsenate at sample temperatures $> 100^\circ\text{F}$ (38°C) – positive interference
 Hardness, Total (CaCO_3) ≥ 1000 ppm – negative interference
 Iron, Ferrous > 100 ppm – positive interference
 Molybdate > 1000 ppm – negative interference
 Silica at sample temperatures $> 100^\circ\text{F}$ (38°C) – positive interference

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

Azole (BT) – 5 ppm
 Azole (TT) – 5 ppm
 Biguanide – 50 ppm
 Bromine – 10 ppm
 Chloride – 1000 ppm

Chlorine – 10 ppm
 Copper – 5 ppm
 Cyanuric Acid – 200 ppm
 Fluoride – 10 ppm
 Iron, Ferric – 10 ppm
 Nitrate – 2000 ppm
 Nitrite – 2000 ppm
 Phosphonate – 5 ppm

**Interferences
(cont'd)**

Polymer – 1000 ppm
Polyphosphate – 5 ppm
Sulfate – 1000 ppm
Sulfite – 100 ppm
Zinc – 5 ppm

Test Method

Molybdovanadate

Under acidic conditions, phosphates produce a yellow complex with vanadium that is proportional to the phosphate concentration in a sample.

**Estimated
Detection Limit**

0.3 ppm PO_4^{3-}

Precision

Using two lots of reagent and a standard solution of 40 ppm PO_4^{3-} , an individual analyst obtained a standard deviation with the instrument of ± 0.6 ppm PO_4^{3-} .

Application

Industrial Water, Potable Water, and Wastewater

Ordering Info**Reagent Pack**

K-8004 Phosphate 70

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

Reagent Pack Components

R-8004A Phosphate 70 - Reagent A

Optional Reagents & Accessories

R-0737 Hydrochloric Acid 3N

R-0833 DI Water

