

Phosphate 3

Range(s): 0-3.00 ppm PO_4^{3-} , 0-0.98 ppm P, 0-2.24 ppm P_2O_5
 20-3000 ppb PO_4^{3-} , 0-980 ppb P, 0-2240 ppb P_2O_5



Procedure

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 in local stores); then rinse with Hydrochloric Acid 3N (R-0737) followed by DI Water (R-0833) or sample water.

1. Turn on the Colorimeter.
 2. For results to be displayed in terms of ppm, select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Phosphate 3 using ◀▶.
- For results to be displayed in terms of ppb, select a test menu (ALL TESTS, RECENT TESTS, or FAVORITES) containing Phosphate 3000 using ◀▶.

3. Select the appropriate test (Phosphate 3 or Phosphate 3000) using ▲▼; then press ENTER Ⓢ.
4. Select a chemical form (PO_4 , P, or P_2O_5) 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. Add 1 mL Phosphate 3 - Reagent A; then swirl to mix.
10. Using the 0.05 g dipper spoon, add 1 level dipper Phosphate 3 - Reagent B; then cap and swirl to mix for 30 seconds.
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 5-minute [05:00] 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

Arsenate, all levels – positive interference
 Biguanide (as product) > 20 ppm – negative interference
 Nitrite > 250 ppm – negative interference

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) – 500 ppm
 Azole (BT) – 5 ppm

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 Chloride – 3600 ppm
 Copper – 5 ppm
 Fluoride – 10 ppm
 Hardness, Calcium (CaCO_3) – 1000 ppm
 Iron, Ferric – 10 ppm
 Iron, Ferrous – 10 ppm
 Molybdenum – 10 ppm

Nitrate – 2000 ppm
 Phosphonate (HEDP) – 20 ppm
 Polymer – 20 ppm
 Silica – 150 ppm
 Sulfate – 1000 ppm
 Sulfite – 100 ppm
 Zinc – 10 ppm

Test Method

Molybdenum Blue

Under acidic conditions, phosphate reacts with ammonium molybdate producing a heteropoly acid, which is then reduced with ascorbic acid to produce an intense blue color proportional to the concentration of phosphate in a sample.

**Estimated
Detection Limit**

0.02 ppm PO_4^{3-} (20 ppb PO_4^{3-})

Precision

Using two lots of reagent and a standard solution of 1.5 ppm PO_4^{3-} (1500 ppb PO_4^{3-}), an individual analyst obtained a standard deviation with the instrument of ± 0.01 ppm PO_4^{3-} (10 ppb PO_4^{3-}).

Application

Industrial Water, Potable Water, Recreational Water, and Wastewater

Ordering Info**Reagent Pack**

K-8005 Phosphate 3

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

Reagent Pack Components

R-8005A Phosphate 3 - Reagent A

R-8005B Phosphate 3 - Reagent B

Optional Reagents & Accessories

R-0737 Hydrochloric Acid 3N

R-0833 DI Water



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