

### Orthophosphate – Low Range Test (Hach PO-19)



1. Fill one square bottle to the 20 mL line with the sample A water; fill the other square mixing bottle with sample B water.
2. Add the contents of one PhosVer 3 Phosphate Reagent packet to the sample A bottle & another packet to the sample B bottle.
3. Swirl (not shake) to mix.
4. Allow the bottles to stand undisturbed for at least 8 but no more than 10 minutes for full color development. If phosphate is present, a blue-violet color will develop. While you wait, proceed to step 5.
5. Fill a clean test tube to the top line (1 cm below the opening) with sample water. Place this tube in the outermost opening of the black box.
6. After waiting the 8 to 10 minutes, fill an empty test tube to the top line (1 cm below the opening) with the prepared sample A from the square bottle and fill another with sample B.
7. Place this tube in the center-most opening of the black box.

Over ↓

### Nitrate Test-Low Range (Hach NI-14)



1. Rinse each test tube twice with the water sample to be tested by capping the tube and shaking vigorously for both samples A & B
2. After rinsing, fill each tube to the **bottom** mark or line (5 mL) with the water sample for both samples A & B.
3. Add the contents of a NitraVer **6** Nitrate Reagent packet to the sample A tube & another packet to the sample B tube.
4. Cap the tubes and shake for 3 minutes.
5. Then allow the tubes to stand undisturbed for 30 seconds. Unoxidized particles of cadmium metal may form; if they do, they will settle to the bottom of the tube as black specks.
- 6a. IF you see Cadmium particles: Pour the prepared sample into a second viewing tube carefully so that the cadmium particles remain in the first tube. Rinse the first tube into the **cadmium waste container** with distilled water. Proceed to step 7.
- 6b. IF you do NOT see Cadmium particles: proceed to the next step.
7. Add the contents of one NitriVer **3** Nitrite Reagent packet to the sample A tube & another packet to the sample B tube.
8. Cap the tubes and shake for 30 seconds.

Over ↓

### Orthophosphate – Low Range Test (Hach PO-19)

8. Hold the black box so a light source (sky, window, or lamp) shines down on the tubes. View the tubes through the openings on the front of the box. Rotate the disc to obtain a color match. Read the value indicated. If the color is too dark, and is off the scale, proceed to the mid range test (See **Creek Connections Handbook**). If the solution is clear, record 0 mg/L.
9. **Divide this value by 150** to obtain the mg/L of total phosphorus. Record this value for each sample.
10. Pour all liquids from the test into the **waste container**. Rinse all glassware with distilled water.



### Nitrate Test-Low Range (Hach NI-14)

9. Allow the tubes to sit for at least 10 minutes, but no longer than 20 minutes before using the color comparator (black box). A red/pink color will develop if nitrate is present (no color = 0 mg/L nitrates). While waiting the 10 minutes, continue to step 10.
10. Fill another test tube to the 5 mL mark (bottom line on tube) with untreated water sample. Place this tube in the outermost opening of the black box.
11. After at least 10 minutes has passed, insert the tube with chemicals added into the centermost opening of the black box.
12. Hold the box up to a light source (sky, window, or lamp) and view through the openings in front.
13. Rotate the disc to obtain a color match, then read the mg/L nitrate value through the scale window.
14. Record this value on the data sheet. If this value is 1 mg/L of nitrate or greater, the results are not accurate enough and you must proceed to the high range (1-10 mg/L nitrate) test instructions (See Creek Connections Handbook).
15. Pour liquids from the test into the **waste container**. Rinse all glassware with distilled water.

