

Directions for Using the Hach **Phosphate** Colorimeter (Ascorbic Acid Method)

(Lower Limit = 0.02 mg/L – Upper Limit = 3.0 mg/L)

** For each new PhosVer3 reagent lot perform analysis steps 1-16 using deionized water to create a reagent blank*

1. Fill a 10-mL cell to the 10-mL line with sample. (Label the cell in the white diamond with "S" for sample.)
2. Add the contents of one PhosVer 3 Powder Pillow to the sample cell.
3. Immediately cap and shake the sample cell for 10–15 seconds.
4. Wait 2 minutes for full color development.
5. Fill a second sample cell with 10 mL of sample. This is the sample blank. (Label the cell in the white diamond with a "B" for blank.)
6. Press the POWER key  to turn the meter on.
7. Wipe off the outside of the sample cells with a soft cloth or disposable wipe.
8. Place the blank into the cell holder.
9. Cover the sample cell with the instrument cap.
10. Press: ZERO/SCROLL.  The display will show "--" then "0.00".
11. Remove the blank from the cell holder.
12. Place the prepared sample into the cell holder with the diamond mark facing the keypad.
13. Cover the sample cell with the instrument cap.
14. Press: READ/ENTER.  The display will show "--", followed by the results in mg/L phosphate (as PO_4^{3-}).
15. Subtract the reagent blank value from the reading for the true concentration.
16. Rinse the cells with deionized water.

Directions for Using the Hach **Ammonia** Colorimeter (Salicylate Method)

(Lower Limit = 0.01 mg/L – Upper Limit = 0.8 mg/L)

1. Fill a 10-mL cell to the 10-mL line with sample. (Label the cell in the white diamond with "S" for sample.)
 2. Fill a second 10-mL cell with 10 mL of ammonia-free deionized water. This is the reagent blank. (Label the cell in the white diamond with a "B" for blank.)
 3. Add the contents of one Ammonia Salicylate Powder Pillow to each cell.
 4. Cap and shake both cells well to mix.
 5. Wait 3 minutes.
 6. Add the contents of one Ammonia Cyanurate Powder Pillow to each cell.
 7. Cap and shake both cells until dissolved.
 8. Wait 15 minutes.
 9. After 15 minutes, invert both cells a few times to mix.
 10. Press the POWER key  to turn the meter on.
 11. Place the **yellow-colored** blank in the cell holder.
 12. Cover the blank with the instrument cap.
 13. Press: ZERO/SCROLL.  The display will show "--" then "0.00".
 14. Remove the blank from the cell holder.
 15. Place the prepared sample into the cell holder with the diamond mark facing the keypad.  (A green color will develop if ammonia nitrogen is present.)
 16. Cover the sample cell with the instrument cap.
 17. Press: READ/ENTER.  The display will show "--", followed by the results in mg/L ammonia as nitrogen ($\text{NH}_3\text{-N}$).
 18. Rinse the cells with deionized water.
- *If the display flashes 0.88 mg/L repeat the test by adding 10 ml of sample to the graduated cylinder and then dilute by filling the graduated cylinder to 25 mL with ammonia-free deionized water. Stopper and invert three times to mix. Repeat steps 1-18 using 10 ml of dilute sample. Multiply the results by 2.5 and report the results in mg/L ammonia as nitrogen ($\text{NH}_3\text{-N}$).*