

Colorimetric Analysis of water

Create a 100.0 mL stock solution from potassium dihydrogen phosphate that is 200 - 500 ppm phosphate ion. (Determine the exact concentration.) Dilute stock solution to make a standard that is about 20 ppm. (Determine exact concentration).

Using the 20 ppm stock solution, make 4-50 mL solutions ranging from 0.5 to 5 ppm PO_4^{3-} .

Pipet 25.00 mL of each standard solution into a small beaker or Erlenmeyer flask. (4 different test tubes). Pipet 25.00 mL of your water sample into a 5th flask.

(Complete this step within 15 minutes) To the flask with a medium concentration of standard, pipet 1 mL of molybdate reagent and 2 drops of stannous chloride reagent. Mix carefully and wait 5 minutes for color to develop. (This is a good time to measure the blank if you have not already done so.) Using this solution with the highest concentration, measure the spectra of the complex. Determine the lambda max and absorbance at that value.

To each remaining flask, pipet 1 mL of molybdate reagent and 2 drops of stannous chloride reagent. Mix carefully and wait 5 minutes for color to develop.

Using the lambda max, measure the absorbance of each solution including your own water sample and the one previously measured with the spectrum. Create a Beer's Law plot and determine the concentration of phosphate ion in your water, with error.

This is an experimental lab, so you will be graded on your work, not your actual answer. So for this lab (like the GC lab). Turn in your Beer's law graph. Write the equation of the line (determined from Excel, with error) on the graph. On the back of the graph show all your calculations. Circle your final answer.