

Analytical Chemistry

Chapter 4 & 5

by

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Chapter Name

by Main Author's Name

<http://ocw.ump.edu.my/course/view.php?id=467>

Activity 7

1. Samples for analysis must be representative and homogenous. Why?
2. What are the three major considerations that must be taken into account when deciding on a sampling procedure?
3. What is sample preservation?
4. Liquid sample is much easier to prepare. Explain.



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5. Consider the following data of a typical quantitative gas chromatographic analysis where a compound, X, is used as the external standard. An injection ($1\ \mu\text{L}$) of a mixture containing 10, 12 and 13 ppm of X, Y and Z, respectively, gave respective peak areas of 515, 748 and 939 Au. An injection ($2\ \mu\text{L}$) of the sample containing compounds X, Y and Z gave peak areas of 232, 657 and 984 Au, respectively. Calculate the concentration of compounds X, Y and Z.



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6. A serum sample contains Na^+ that gives a response of 1.337 mV in atomic emission experiment. A 5.00 mL 2.00 M NaCl solution was added to 95.00 mL of the serum. The spiked serum gave a response of 1.888 mV. Determine the concentration of Na^+ in the original serum sample.



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7. The single point standard addition method was used in the determination of phosphate by the molybdenum blue method. A 2.00 mL urine sample was treated with molybdenum blue reagents to produce a species absorbing at 820 nm, after which the sample was diluted to 100.00 mL. A 25.00 mL aliquot gave an instrument reading (absorbance) of 0.428 (solution 1). Addition of 1.00 mL of a solution containing 0.0500 mg of phosphate to a second 25.00 mL aliquot gave an absorbance of 0.517 (solution 2). Use these data to calculate the concentration of phosphate in milligrams per milliliter of the sample, assuming a linear relationship between absorbance and concentration and a blank measurement has been made.



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