Analytical Chemistry

Chapter 1

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Activity 1

1. What is the normality of a solution of 4.9000 g H_2SO_4 in 1 L of solution? Given the molecular weight of H_2SO_4 is 98.08 g/mol.

2. What is the weight percent of a solution of 25 g NaCl in 100 g of solution?

3. If 5.0 g NaCl is dissolved in water to make 250 mL of solution, what is the concentration? Given the molecular weight of NaCl is 58.44 g/mol.

4. How do you prepare 100 mL of 0.40 M $MgSO_4$ from a stock solution of 2.0 M $MgSO_4$?

Activity 1

5. Distinguish between qualitative and quantitative analysis.

6. Distinguish between the expression of concentration on weight/weight, weight/volume and volume/volume bases.

7. Define standard solution. How it is prepared?

8. Calculate the grams of substance required to prepare the following solutions:
   a. 250 mL of 5.00% (w/v) $NaNO_3$
   b. 500 mL of 1.00% (w/v) NH_4NO_3
   c. 1000 mL of 10.0% (w/v) $AgNO_3$

9. What is the %(w/v) of the solute in each of the following solutions?
   a. 52.3 g Na_2SO_4/L
   b. 275 g KBr in 500 mL
   c. 3.65 g SO_2 in 200 mL

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