Name: _____ Date: _____ Period: ___
LTHS: Chemistry

More Concentration Practice

$\%\text{mass} = \frac{\text{mass solute}}{\text{mass solution}} \times 100$

$M = \frac{\text{mol solute}}{\text{L solution}}$

%

1. What is the percent of $NaHCO_3$ in a solution containing 25 g $NaHCO_3$, dissolved in 750 g solution?

$\% = \frac{25\text{g } NaHCO_3}{750\text{g}} \times 100$

$= 3.3\%$

2. What is the percent of ethanol in a solution that contains 55 mL of ethanol dissolved in 210 mL of water?

$\% = \frac{55\text{mL ethanol}}{(210+55)\text{mL}} \times 100$

$= 20.75 = 21\%$

3. You have 1225.0 g of a bleach solution. The solution is 6.79 % sodium hypochlorite, NaOCl. How many grams of NaOCl are in the solution?

$6.79\% = \frac{X}{1225.0\text{g}} \times 100$

$X = 83.2\text{g NaOCl}$

4. What is the percent by volume of isopropyl alcohol in a solution that contains 65 mL of isopropyl alcohol in a 1.5 L solution?

1.5L = 1500mL

$\% = \frac{65\text{mL}}{1500\text{mL}} \times 100$

$= 4.3\%$

Molarity

5. What is the molarity of an aqueous solution containing 50.0 g of glucose ($C_6H_{12}O_6$) in 2.0 L of solution?

$50.0\text{g } C_6H_{12}O_6 \times \frac{1\text{mol}}{180.18\text{g}} = .278\text{ mol}$

$M = \frac{.278\text{mol}}{2.0\text{L}}$

$= .139\text{M}$

6. How many grams of NaOH are in 250 mL of a 3.0M NaOH solution?

250mL = .250L

$3.0\text{M} = \frac{\text{mol}}{.250\text{L}}$

$\text{mol} = .75\text{mol NaOH} \times \frac{40.00\text{g}}{1\text{mol}} = 30.\text{g NaOH}$

$M_1V_1 = M_2V_2$

Diluting Stock Solutions

7. How many milliliters of a 12.0 M H_2SO_4 stock solution would you need to prepare 100.0 mL of 0.75 M H_2SO_4?

$12.0\text{M} \times X = .75\text{M} \times 100.0\text{mL}$

$X = 6.25\text{mL}$

8. If you dilute 15.0 mL of a 3.5M solution to make 100.00 mL of solution, what is the molarity of the dilute solution?

$3.5\text{M} \times 15.0\text{mL} = X \times 100.0\text{mL}$

$X = .525$

$= .53\text{M}$