

Worksheet: Concentration Units

Key

1. Calculate the mass percent of the following solutions.

a. 5.4g K_2SO_4 dissolved in water to give 83.5g of solution.

$$\frac{5.4 \text{ g } K_2SO_4}{83.5 \text{ g sol'n}} \times 100 = \boxed{6.5\% K_2SO_4}$$

b. 5.5g glucose in 20.0g of water.

$$\frac{5.5 \text{ g glucose}}{25.5 \text{ g sol'n}} \times 100 = \boxed{22\% \text{ glucose}}$$

2. If there are 12mL of ethanol in 100mL of solution, what is the %v/v of the solution?

$$\frac{12 \text{ mL EtOH}}{100 \text{ mL sol'n}} \times 100 = \boxed{12\% \text{ EtOH}}$$

3. If the %m/v of a KCl solution is 5%, how many grams of KCl are in 50mL of solution?

$$5 = \frac{\text{g KCl}}{50 \text{ mL sol'n}} \times 100$$

$$0.05 = \frac{\text{g KCl}}{50 \text{ mL sol'n}} \quad \boxed{2.5 \text{ g KCl}}$$

4. Calculate the molarity of the following solutions:

a. 0.0150 mol KOH, 25.0mL of solution

$$\frac{0.0150 \text{ mol KOH}}{0.0250 \text{ L sol'n}} = \boxed{0.600 \text{ M KOH}}$$

b. 0.250g NaOH, 50.0mL of solution

$$0.250 \text{ g NaOH} \times \frac{1 \text{ mol NaOH}}{40.01 \text{ g NaOH}} = \frac{0.00625 \text{ mol NaOH}}{0.0500 \text{ L sol'n}} = \boxed{0.125 \text{ M NaOH}}$$