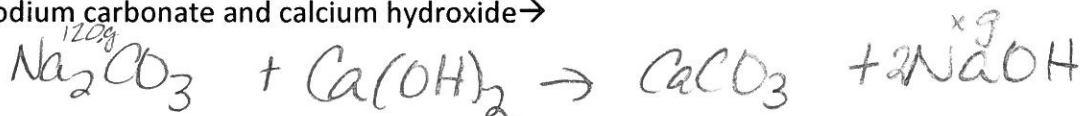


**Stoichiometry Practice Problems #2**

1. If 120. g of sodium carbonate react with an excess of calcium hydroxide, how many grams of sodium hydroxide are formed?

Sodium carbonate and calcium hydroxide →



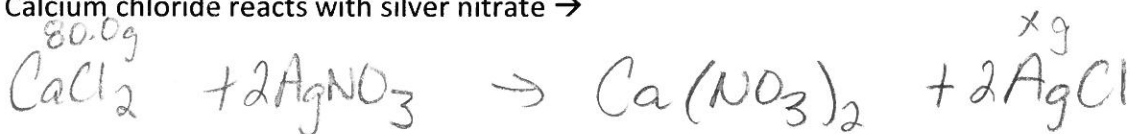
$$\frac{120. \text{g Na}_2\text{CO}_3}{105.98884 \text{ g Na}_2\text{CO}_3} \times \frac{1 \text{ mol Na}_2\text{CO}_3}{1 \text{ mol Na}_2\text{CO}_3} \times \frac{2 \text{ mol NaOH}}{1 \text{ mol Na}_2\text{CO}_3} \times \frac{39.99711 \text{ g NaOH}}{1 \text{ mol NaOH}} = \boxed{90.6 \text{ g NaOH}}$$

$$2(22.98977) + 12.0111 + 3(15.9994) = 105.98884$$

$$22.98977 + 15.9994 + 15.9994 = 39.99711$$

2. When 80.0 g of calcium chloride react with an excess of silver nitrate, how many grams of silver chloride are produced?

Calcium chloride reacts with silver nitrate →

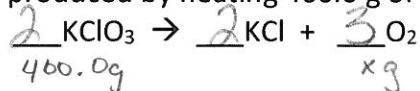


$$\frac{80.0 \text{ g CaCl}_2}{110.986 \text{ g CaCl}_2} \times \frac{1 \text{ mol CaCl}_2}{1 \text{ mol CaCl}_2} \times \frac{2 \text{ mol AgCl}}{1 \text{ mol CaCl}_2} \times \frac{143.321 \text{ g AgCl}}{1 \text{ mol AgCl}} = \boxed{207 \text{ g AgCl}}$$

$$40.08 + 2(35.453) = 110.986$$

$$107.868 + 35.453 = 143.321$$

3. How many grams of oxygen are produced by heating 400.0 g of potassium chlorate?

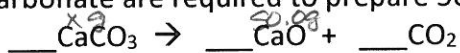


$$\frac{400.0 \text{ g KClO}_3}{122.5495 \text{ g KClO}_3} \times \frac{1 \text{ mol KClO}_3}{1 \text{ mol KClO}_3} \times \frac{3 \text{ mol O}_2}{2 \text{ mol KClO}_3} \times \frac{31.9988 \text{ g O}_2}{1 \text{ mol O}_2} = \boxed{156.7 \text{ g O}_2}$$

$$39.0983 + 35.453 + 3(15.9994) = 122.5495$$

$$2(15.9994) = 31.9988$$

4. How many grams of calcium carbonate are required to prepare 50.0 g of calcium oxide?

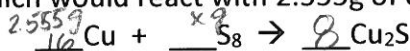


50.0g CaO		1 mol CaO		1 mol CaCO <sub>3</sub>		100.0893g CaCO <sub>3</sub>	=	89.2g CaCO <sub>3</sub>
		56.0794g CaO		1 mol CaO		1 mol CaCO <sub>3</sub>		

$$40.08 + 15.9994 = 56.0794$$

$$40.08 + 12.011 + 3(15.9994) = 100.0893$$

5. Calculate the mass of sulfur which would react with 2.555g of copper.

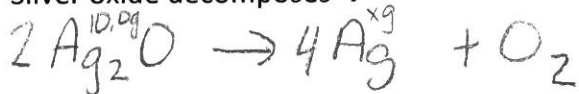


2.555g Cu		1 mol Cu		1 mol S <sub>8</sub>		256.48g S <sub>8</sub>	=	64.45g S <sub>8</sub>
		63.546g Cu		16 mol Cu		1 mol S <sub>8</sub>		

$$8(32.06) = 256.48 \text{ g S}_8$$

6. Calculate the grams of silver formed by heating 10.0 g of silver oxide.

Silver oxide decomposes →



10.0g Ag <sub>2</sub> O		1 mol Ag <sub>2</sub> O		4 mol Ag		107.868g Ag	=	9.31g Ag
		231.7354g Ag <sub>2</sub> O		2 mol Ag <sub>2</sub> O		1 mol Ag		

$$2(107.868) + 15.9994 = 231.7354 \text{ g}$$