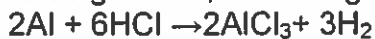


Name: Key

Period: _____

Method 2**Limiting Reagents Practice**

1) If 25 g of aluminum was added to 90 g of HCl, according to the following equation:

A. What is the limiting reagent? 25g 90g

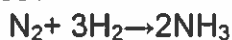
$$\frac{25\text{g Al}}{26.98\text{g}} \times \frac{1\text{mol Al}}{2\text{mol Al}} \times \frac{3\text{mol H}_2}{1\text{mol H}_2} \times \frac{2.02\text{g H}_2}{1\text{mol H}_2} = 2.81\text{g H}_2$$

HCl

$$\frac{90\text{g HCl}}{36.46\text{g}} \times \frac{1\text{mol HCl}}{6\text{mol}} \times \frac{3\text{mol}}{1\text{mol}} \times \frac{2.02\text{g H}_2}{1\text{mol}} = 2.49\text{g H}_2$$

B. What mass of H₂ will be produced?

See above

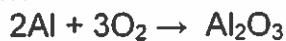
2.49g H₂2) If you have 20.0 g of nitrogen and 5.0 g of hydrogen, which is the limiting reagent? How much NH₃ could you produce?20g 5g

$$\frac{20\text{g N}_2}{28.02\text{g}} \times \frac{1\text{mol}}{1\text{mol}} \times \frac{2\text{mol}}{1\text{mol}} \times \frac{17.04\text{g NH}_3}{1\text{mol}} = 24.33\text{g NH}_3$$

LR: N₂
24.3g NH₃

$$\frac{5\text{g H}_2}{2.02\text{g}} \times \frac{1\text{mol}}{3\text{mol}} \times \frac{2\text{mol}}{1\text{mol}} \times \frac{17.04\text{g NH}_3}{1\text{mol}} = 28.1\text{g NH}_3$$

3) What mass of aluminum oxide is formed when 10.0 g of aluminum is burned in 20.0 g of oxygen?

10g 20g

$$\frac{10\text{g Al}}{26.98\text{g}} \times \frac{1\text{mol}}{2\text{mol}} \times \frac{1\text{mol}}{1\text{mol}} \times \frac{101.96\text{g}}{1\text{mol}} = \boxed{18.9\text{g Al}_2\text{O}_3}$$

$$\frac{20\text{g O}_2}{32\text{g}} \times \frac{1\text{mol}}{3\text{mol}} \times \frac{1\text{mol}}{1\text{mol}} \times \frac{101.96\text{g}}{1\text{mol}} = 21.2\text{g Al}_2\text{O}_3$$

4) When C₃H₈ burns in oxygen, CO₂ and H₂O are produced. If 15.0 g of C₃H₈ reacts with 60.0 g of O₂, how much CO₂ is produced?15g 60g

$$\frac{15\text{g C}_3\text{H}_8}{44.11\text{g}} \times \frac{1\text{mol}}{1\text{mol}} \times \frac{3\text{mol}}{1\text{mol}} = \boxed{1.02\text{mol CO}_2}$$

$$\frac{60\text{g O}_2}{32\text{g}} \times \frac{1\text{mol}}{5\text{mol}} \times \frac{3\text{mol}}{1\text{mol}} = 1.12\text{mol CO}_2$$