



$$15.0 \text{ g Fe} \frac{1 \text{ mole Fe}}{55.85 \text{ g Fe}} = 0.269 \text{ mole Fe}$$

$$0.269 \text{ mole Fe} \frac{2 \text{ mole Al}}{2 \text{ mole Fe}} \frac{26.98 \text{ g Al}}{1 \text{ mole Al}} = 7.26 \text{ g Al}$$

$$0.269 \text{ mole Fe} \frac{1 \text{ mole Fe}_2\text{O}_3}{2 \text{ mole Fe}} \frac{159.7 \text{ g Fe}_2\text{O}_3}{1 \text{ mole Fe}_2\text{O}_3} = 21.5 \text{ g Fe}_2\text{O}_3$$

$$0.269 \text{ mole Fe} \frac{1 \text{ mole Al}_2\text{O}_3}{2 \text{ mole Fe}} \frac{101.96 \text{ g Al}_2\text{O}_3}{1 \text{ mole Al}_2\text{O}_3} = 13.7 \text{ g Al}_2\text{O}_3$$

$$101) 1.000 \text{ kg Al} \frac{1000 \text{ g Al}}{1 \text{ kg Al}} \frac{1 \text{ mole Al}}{26.98 \text{ g Al}} \frac{3 \text{ mole NH}_4\text{ClO}_4}{3 \text{ mole Al}} \frac{117.49 \text{ g NH}_4\text{ClO}_4}{1 \text{ mole NH}_4\text{ClO}_4} = 7355 \text{ g} = 7.355 \text{ kg NH}_4\text{ClO}_4$$

$$103) a) 1.0 \times 10^2 \text{ mg NaHCO}_3 \frac{1 \text{ g}}{1000 \text{ mg}} \frac{1 \text{ mole NaHCO}_3}{84.01 \text{ g NaHCO}_3} \frac{1 \text{ mole C}_6\text{H}_8\text{O}_7}{3 \text{ mole NaHCO}_3} \frac{192.12 \text{ g C}_6\text{H}_8\text{O}_7}{1 \text{ mole C}_6\text{H}_8\text{O}_7} = 0.076 \text{ g}$$

$$b) 0.10 \text{ g NaHCO}_3 \frac{1 \text{ mole NaHCO}_3}{84.01 \text{ g NaHCO}_3} \frac{3 \text{ mole CO}_2}{3 \text{ mole NaHCO}_3} \frac{44.01 \text{ g CO}_2}{1 \text{ mole CO}_2} = 0.052 \text{ g CO}_2$$

$$105) 1.0 \text{ ton C} \frac{907 \text{ kg}}{1 \text{ ton}} \frac{1000 \text{ g}}{1 \text{ kg}} \frac{1 \text{ mole C}}{12.01 \text{ g C}} \frac{1 \text{ mole C}}{2 \text{ mole C}} \frac{12.01 \text{ g C}}{1 \text{ mole C}} \frac{100 \text{ g coke}}{95 \text{ g C}} = 7.2 \times 10^4 \text{ g coke}$$