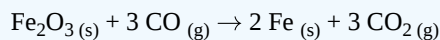


1.7.5.2: Practice Stoichiometry part 1

Mole to Mole Conversions

Exercise 1.7.5.2.1



For the reaction above, how many moles of Fe would be produced from 0.877 moles Fe_2O_3 ?

Answer

1.75 mol Fe

How many moles of CO_2 would be produced from 0.438 moles Fe_2O_3 ?

Answer

1.31 mol CO_2

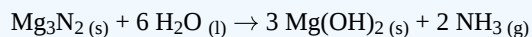
How many moles of Fe would be produced from 0.545 moles CO ?

Answer

0.363 mol Fe

Mass to Mass Conversions

Exercise 1.7.5.2.1



How many grams of H_2O would react with 34.88 grams Mg_3N_2 ?

Answer

$$\begin{aligned} 34.88 \text{gMg}_3\text{N}_2 &\times \frac{1 \text{molMg}_3\text{N}_2}{100.95 \text{gMg}_3\text{N}_2} \times \frac{6 \text{molH}_2\text{O}}{1 \text{molMg}_3\text{N}_2} \times \frac{18.02 \text{gH}_2\text{O}}{1 \text{molH}_2\text{O}} \\ &= 37.36 \text{ g H}_2\text{O} \end{aligned}$$

How many grams of NH_3 would be produced from 76.77 grams Mg_3N_2 ?

Answer

$$\begin{aligned} 76.77 \text{gMg}_3\text{N}_2 &\times \frac{1 \text{molMg}_3\text{N}_2}{100.95 \text{gMg}_3\text{N}_2} \times \frac{2 \text{molNH}_3}{1 \text{molMg}_3\text{N}_2} \times \frac{17.04 \text{gNH}_3}{1 \text{molNH}_3} \\ &= 25.92 \text{ g NH}_3 \end{aligned}$$

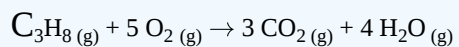
How many grams of $\text{Mg}(\text{OH})_2$ are produced from 46.32 g H_2O ?

Answer

$$\begin{aligned} 46.32 \text{gH}_2\text{O} &\times \frac{1 \text{molH}_2\text{O}}{18.02 \text{gH}_2\text{O}} \times \frac{3 \text{molMg}(\text{OH})_2}{6 \text{molH}_2\text{O}} \times \frac{58.33 \text{gMg}(\text{OH})_2}{1 \text{molMg}(\text{OH})_2} \\ &= 74.97 \text{ g Mg}(\text{OH})_2 \end{aligned}$$

Mixed Stoichiometry

Exercise 1.7.5.2.1



How many grams of O_2 are needed to produce 4.22 moles of CO_2 ?

Answer

225 grams of O_2

How many moles of C_3H_8 produce 87.8 grams of H_2O ?

Answer

1.22 moles C_3H_8

How many grams of CO_2 are produced by a reaction that also produces 2.87 moles H_2O ?

Answer

94.7 g CO_2

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