

Level 1

1) If 6.0 moles of hydrogen are mixed with 4.8 moles of nitrogen: $3\text{H}_2 + \text{N}_2 \rightarrow 2\text{NH}_3$

A) Which substance is the limiting reactant?

B) How many moles of ammonia are produced?

C) How many moles of excess reactant are left over?

Level 2

2) If 20.0 g of hydrogen are mixed with 30.0 g of oxygen, water is produced according to the equation: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

A) Which substance is the limiting reagent?

B) What mass of water is produced?

4) In the reaction $\text{Mg}_3\text{N}_2 + 6\text{H}_2\text{O} \rightarrow 3\text{Mg}(\text{OH})_2 + 2\text{NH}_3$, if the initial amount of Mg_3N_2 is 58.1 g and the initial amount of H_2O is 20.4 g,

A) Which reactant is the limiting reagent?

B) What is the mass of magnesium hydroxide produced?

C) How many molecules of ammonia gas would be released?

Level 3

5) In the reaction $2\text{C}_3\text{H}_6 + 2\text{NH}_3 + 3\text{O}_2 \rightarrow 2\text{C}_3\text{H}_3\text{N} + 6\text{H}_2\text{O}$, if the initial amounts are 22.5 g of C_3H_6 , 20.6 g of NH_3 , and 18.1 g of O_2 , what is the limiting reagent?

6) When a mixture of 10.0 g of acetylene (C_2H_2) and 10.0 g of oxygen (O_2) is ignited, the resultant combustion reaction produces CO_2 and H_2O .

A) Write a balanced equation for this reaction.

B) Which reactant is the limiting reactant.

C) How many grams of C_2H_2 , O_2 , CO_2 and H_2O are present after the reaction is complete?