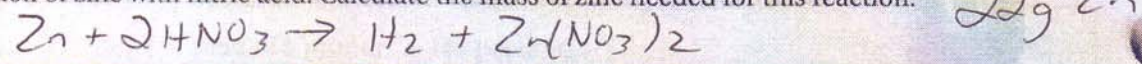
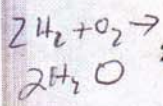


8. A volume of 7.5 L of hydrogen gas at STP was produced from the single-replacement reaction of zinc with nitric acid. Calculate the mass of zinc needed for this reaction.



SECTION 12.3 LIMITING REAGENT AND PERCENT YIELD

1. How many moles of water can be made from 4 moles of oxygen gas and 16 moles of hydrogen gas? What is the limiting reagent?

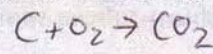


8 mol H_2
8 mol O_2 LR

2. Calculate the mass of water produced from the reaction of 24.0 g of H_2 and 160.0 g of O_2 . What is the limiting reagent?

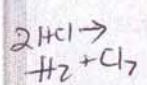
180g H_2O

3. The burning of 18.0 g of carbon produces 55.0 g of carbon dioxide. What is the theoretical yield of CO_2 ? Calculate the percent yield of CO_2 .



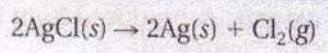
T - 66.0g CO_2
% - 83.3%

4. Calculate the percent yield of $Cl_2(g)$ in the electrolytic decomposition of hydrogen chloride if 25.8 g of HCl produces 13.6 g of chlorine gas.



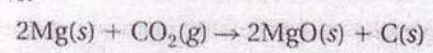
T - 25.1g Cl_2
% - 54.2%

5. One method for reclaiming silver metal from silver chloride results in a 94.6% yield. Calculate the actual mass of silver that can be produced in this reaction if 100.0 g of silver chloride is converted to silver metal.



75.3g Ag Actual
 $94.6\% \times 75.3g Ag = 71.2g$

6. What is the actual amount of magnesium oxide produced when excess carbon dioxide reacts with 42.8 g of magnesium metal? The percent yield of $MgO(s)$ for this reaction is 81.7%.



71.0g MgO Actual
 $81.7\% \times 71.0g MgO = 58.0g$