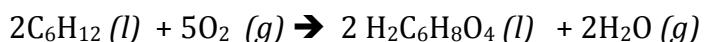


**Definitions:****Theoretical Yield:****Actual Yield:****Percent Yield:****Sample Problem:**

Adipic acid,  $\text{H}_2\text{C}_6\text{H}_8\text{O}_4$ , used to produce nylon, is made commercially by a reaction between cyclohexane ( $\text{C}_6\text{H}_{12}$ ) and  $\text{O}_2$ :



(a) Assume that you carry out this reaction with 25.0 g of cyclohexane and that cyclohexane is the limiting reactant. What is the theoretical yield of adipic acid? (b) If you obtain 33.5 g of adipic acid, what is the percent yield of the reaction?

Sample Problem:

An iron ore sample contains  $\text{Fe}_2\text{O}_3$  plus other impurities. A 752 g sample of this impure iron ore is heated with excess carbon, producing 453 g of pure iron by the following reaction:



What is the mass percent of  $\text{Fe}_2\text{O}_3$  in the original impure iron sample? Assume that  $\text{Fe}_2\text{O}_3$  is the only source of iron and that the reaction is 100% efficient.