

Unit 8 Stoichiometry
Limiting Reactant, Excess Reactant,
Theoretical Yield, and Percent Yield

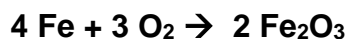
Name _____
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Part A: Limiting Reactant

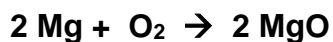
1. Butane, C₄H₁₀, burns in the presence of oxygen to form carbon dioxide and water. Determine the limiting reactant if the reaction begins with 25.0 grams of each reactant.



2. Iron ore is corroded by oxygen to form iron III oxide, the reddish brown color of rust. Determine the limiting reactant if the reaction begins with 10.0 moles of each reactant.



3. Magnesium burns in the presence of oxygen to form magnesium oxide. Determine the limiting reactant, when a chemist ignites 1.00 gram of magnesium in a flask containing 0.500 liters of oxygen at STP.

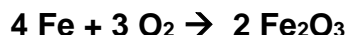


Part B: Excess Reactant

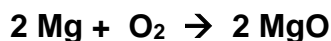
1. Based on the limiting reactant from **Part A #1**, determine the amount of excess reactant leftover. Butane, C_4H_{10} , burns in the presence of oxygen to form carbon dioxide and water.



2. Based on the limiting reactant from **Part A #2**, determine the amount of excess reactant leftover. Iron ore is corroded by oxygen to form iron III oxide, the reddish brown color of rust.



3. Based on the limiting reactant from **Part A #3**, determine the amount of excess reactant leftover. Magnesium burns in the presence of oxygen to form magnesium oxide.



Part C: Percent Yield

4. Based on the limiting reactant from **Part A #1**, determine the percent yield for the reaction, if a chemist is only able to produce 17.32 grams of carbon dioxide in the lab.
5. Based on the limiting reactant from **Part A #2**, determine the percent yield for the reaction, if a chemist is only able to produce 689.21 grams of iron III oxide in the lab.
6. Based on the limiting reactant from **Part A #3**, determine the percent yield for the reaction, if a chemist is only able to produce 1.35 grams of magnesium oxide in the lab.