**Unit 6 Notes**

**Limiting Reactants**

Limiting Reactant – The reactant that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_during the reaction causing no more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to be formed.

Excess Reactant - The reactant(s) that are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ after the limiting reactant runs out completely.

Theoretical Yield – The calculated amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that can be formed when the limiting reactant runs out.

In Stoichiometry problems you can be given two amounts of different reactants and then be asked to find the amount of a product that can be produced. If this is the case you will need to find the limiting reactant and then perform the conversion problem.

To find the limiting reactant you must convert both amounts of reactants to moles of the same unit:

Moles A Moles A

Moles B Moles B

Grams A Grams A

Grams B Grams B

Examples:

1. Consider the following balanced equation:

 N2 + 3H2 🡪 2NH3

If 5.2 moles of N2 reacts with 13.4 moles of H2 what is the limiting reactant?

If 5.2 moles of N2 reacts with 13.4 moles of H2 how many grams of NH3 can be produced

For the following balanced chemical equation:

2NH3 + 3CuO 🡪 N2 + 3Cu + 3H2O

What is the limiting reactant when 18.1 g of NH3 are reacted with 90.4 g CuO?

How many grams of N2 are formed when 18.1 g of NH3 are reacted with 90.4 g CuO?