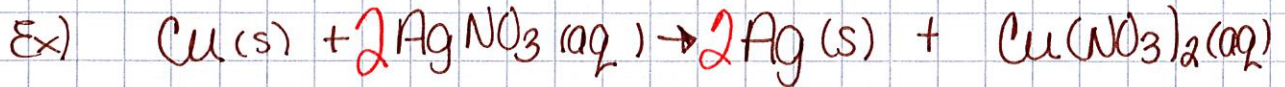


# Limiting Reactants / Excess Reactants

reactant that is used up completely in a reaction, controls amount of product that can be made

all the other reactants

How do we figure out which reactant is the limiting reactant? 2+ 1-



you react 2.00g copper w/ 1.10g silver (I) nitrate.  
GIVEN 1 GIVEN 2

(1) which reactant is the limiting reactant?   
= what is the theoretical yield of silver?

$$\frac{2.00\text{g Cu}}{63.55\text{g Cu}} \times \frac{1\text{mole Cu}}{1\text{mole Cu}} \times \frac{2\text{mole Ag}}{1\text{mole Cu}} \times \frac{107.87\text{g Ag}}{1\text{mole Ag}} = 6.79\text{g Ag}$$

$$\frac{1.10\text{g AgNO}_3}{169.88\text{g AgNO}_3} \times \frac{1\text{mole AgNO}_3}{1\text{mole AgNO}_3} \times \frac{2\text{mole Ag}}{2\text{mole AgNO}_3} \times \frac{107.87\text{g Ag}}{1\text{mole Ag}} = 0.698\text{g Ag}$$

$$\begin{aligned} 1\text{Ag} \times 107.87 &= 107.87\text{g} \\ 1\text{N} \times 14.01 &= 14.01\text{g} \\ 3\text{O} \times 16.00 &= 48.00\text{g} \\ \hline &169.88\text{g} \end{aligned}$$

LR = AgNO<sub>3</sub>    TY = 0.698g Ag  
ER = Cu