

Stoichiometry can be defined as

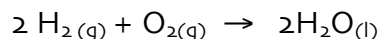
1. Balancing Equations and Demonstrations:

**Magic 7 Diatomic Elements-

2. Stoichiometric Calculations

A. Mole to Mole calculations

EX: If you have 5.68 moles of H_2 , how many moles of O_2 do you need to complete the reaction?

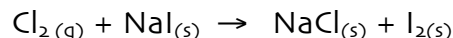


B. Mass to Mole Calculations

EX: You have 3.0 moles of O_2 and an excess (xs) of H_2 , how many grams of H_2O is made?

C. Mass to Mass Calculations

EX: What mass of NaCl is produced when chlorine reacts with 0.29 grams of sodium iodide?



3. Limiting Reagents (Rarely in an actual rxn are you given exact stoichiometric amounts. Usually one reactant is used up first, causing the progress of the reaction to cease.)

EX: You are making cheeseburgers and you have the following ingredients:

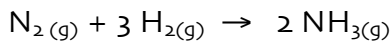
4 patties, 6 buns, 10 pieces of cheese

How many cheeseburgers can you make?

What is left over?

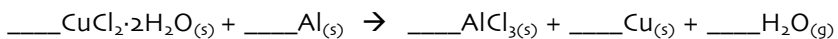
“Enough of this, I’m getting hungry.” Let’s move on to a purely chemical example. . .

EX: For the following reaction, you have three moles of nitrogen and six moles of hydrogen. Which is the limiting reagent?



Strategy: What is your leftover reactant? _____ How much is left over?

On to another lovely example:



You have 6.48 grams of $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}(\text{s})$ and 2.56 grams of $\text{Al}(\text{s})$. Do the following...

- Determine the limiting reagent
- Determine the amount of copper produced
- Determine the grams of left over reactant

4. Percent Yield

Experimental/Theoretical X 100% = % Yield

Experimental-

Theoretical-

Example-

