Student name: Shiza Ahmed
Teacher: Ma'am Ayesha
Soch Badlo By MAK

Ch 04: Stoichiometry

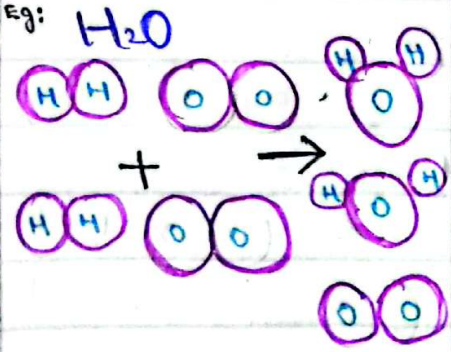
Stoichiometry: Study of relationship between the amounts of reactants and products in a reaction.
∴ Stoichio = element
Metry = measurement

Mole

> SI unit used to count atoms, molecules and ions.
1 mole = 6.023×10^{23} particle (Avagardo number) ↓
Particles may include ions, atoms or molecules.
↳ The mass of 1 mole in any compound will depend on the compound.
Ex: H_2O
> Particles = 6.023×10^{23}
> Mole = 1 mole
> Mass = 18g
Molar volume & Standard volume = 22.41 dm^3
↳ Density & Mass per unit volume of a substance
> Density is directly propotional to molar mass (More the density of a substance, more will the molar mass).
Molarity & Number of moles dissolved per dm^3 of solution.
(Unit: mol / dm^3)
Formula:

$$M = \frac{\text{mole of solute}}{dm^3 \text{ of solution}}$$

Limiting Reactant: A reactant that is completely consumed during the reaction and limits the amount of products formed.
Non-limiting reactant: Reactant that is left unreacted after the reaction (also called excess reactant).
Eg: H_2O



Yields: How much product is formed in a chemical reaction.
Theoratical yield
Maximum amount of product obtained by a balanced reaction by using its Limiting reactant. is called theoratical yeild.
(Calculated yeild, Expected yeild)

Actual Yeild
Actual amount of product obtained through experiment.
(Also called practical yeild).
Percentage Yeild

$$P.Y = \frac{\text{Actual yeild}}{\text{Theoratical yeild}} \times 100$$

*Practical yeild is always less than theoratical yeild.