

AS Chemistry Formulas

Atoms, Molecules and Stoichiometry

-Moles: $\frac{\text{Mass}}{\text{Molar Mass}}$

-Moles: $\frac{\text{Volume}}{24}$

-Volume of a gas: Moles \times 24

-Moles: concentration \times volume

-Relative abundance: $\frac{\text{Peak Height}}{\text{Total Height}} \times 100$

-Ar: (mass \times relative abundance)/100

-Molecular formula: (empirical formula) \times n

where **n:** $\frac{\text{Molecular Mass}}{\text{Mass of Empirical Formula}}$

-Percentage composition:

$$\frac{\text{Atomic mass} \times \text{No. of molar moles}}{\text{Molar mass of Compound}} \times 100$$

States of Matter

-Ideal Gas Law: $PV = nRT$

-Variation of Ideal Gas Law to find Mr: $\frac{\text{Mass} \times RT}{PV}$

-Combined gas law: $\frac{P_1V_1}{t_1} : \frac{P_2V_2}{t_2}$

Chemical Energetics

-Heat Capacity formula:

$$Q = mc\Delta T$$

Q is heat energy,

m is mass,

c is specific heat capacity

ΔT is change in temperature

-Average bond enthalpy:

Σ Bond enthalpy in reactants - Σ Bond enthalpy in products

Equilibria

K_p : $\frac{[\text{product}]^n}{[\text{reactant}]^n}$ (gases only)

K_c : $\frac{[\text{product}]^n}{[\text{reactant}]^n}$ (liquid and gases only)

Where n = no. of moles in equation

-Mole fraction: $\frac{\text{Mole of One Gas}}{\text{Total Mole of Gas}}$

-Partial pressure of a gas: mole fraction \times total pressure