Definitions and Concepts for CAIE Chemistry IGCSE

Topic 3 - Stoichiometry

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*Definitions in **bold** are for extended supplement only*

Definitions have been taken, or modified from the CAIE Cambridge IGCSE Chemistry 0620 syllabus for 2023, 2024 and 2025.

Avogadro's constant: The number of atoms, molecules or ions in a mole of a given substance, 6.02×10^{23}

Compound: A substance made up of two or more types of atoms chemically combined together.

Concentration: The amount of solute dissolved in a volume of a solution, measured in g/dm^3 or mol/dm^3

Empirical formula: The simplest whole number ratio of atoms of each element in a compound.

Limiting reactant: The reactant that is completely used up since it limits the amount of products formed.

Molar volume: The volume occupied by one mole of gaseous molecules.

Molar volume at RTP: The volume occupied by one mole of molecules of any gas at room temperature and pressure (RTP). The molar volume at RTP is 24 dm^3.

Mole: The unit for amount of substance. The symbol for the unit mole is mol.

Molecular formula: The actual ratio of atoms of each element present in a compound.

Percentage purity: The percentage ratio of the mass of a pure compound in an impure sample.

$$\text{Percentage purity} = \frac{\textit{Mass of pure compound}}{\textit{Total mass of impure sample}} \times 100$$

Percentage yield: The percentage ratio of the actual yield of product from a reaction compared with the theoretical yield.

$$\text{Percentage yield} = \frac{\textit{Actual yield}}{\textit{Theoretical Yield}} \times 100$$

Relative atomic mass, A_r: The average mass of an element, A_r , as the average mass of the isotopes of an element compared to 1/12th of the mass of an atom of carbon-12.

Relative formula mass, M_r: The sum of the relative atomic masses in an ionic compound.

Relative molecular mass, M_r: The sum of the relative atomic masses in a molecule.

Spectator ions: Ions that are present on both sides of an equations so remain unchanged and can be cancelled out to leave the ionic equation