

Chemical Equations

1. Metal + Acid \rightarrow Salt + Hydrogen

Example:

Iron + Sulphuric Acid \rightarrow Iron Sulphate + Hydrogen

2. Metal Carbonate + Acid \rightarrow Salt + Carbon Dioxide + Water

Example:

Copper Carbonate + Nitric Acid \rightarrow Copper Nitrate + Carbon Dioxide + Water

3. Acid + Alkali \rightarrow Salt + Water

Example:

Hydrochloric Acid + Sodium Hydroxide \rightarrow Sodium Chloride + Water

4. Alkali Metal + Water \rightarrow Metal Hydroxide + Hydrogen

Example:

Sodium + Water \rightarrow Sodium Hydroxide + Hydrogen

5. $\text{H}^+_{(\text{aq})} + \text{OH}^-_{(\text{aq})} \rightarrow \text{H}_2\text{O}_{(\text{l})}$ [Neutralisation Reaction]

6. $\text{Al}^{3+} + 3\text{e}^- \rightarrow \text{Al}$ [Electrolysis of Bauxite (at Cathode) Reduction]

7. $2\text{O}^{2-} \rightarrow \text{O}_2 + 4\text{e}^-$ [Electrolysis of Bauxite (at Anode) Oxidation]

8. *Mass of Element in Compound* = $\frac{\text{Ar} \times \text{number of atoms of element}}{\text{Mr of the Compound}}$

9. *Moles* = $\frac{\text{Mass (g)}}{\text{Mr}}$

$$10. \quad \text{Concentration} = \frac{\text{mass of solute}}{\text{Volume of Solvent}} \text{ or } \frac{\text{number of moles}}{\text{Volume of Solvent}}$$

$$11. \quad \text{Atom Economy} = \frac{\text{Mr of Desired Products}}{\text{Mr of all Reactants}} \times 100$$

$$12. \text{Percentage yield} = \frac{\text{Mass of Product actually made (g)}}{\text{Maximum theoretical mass of Product}} \times 100$$

$$13. \quad \text{Rate of Reaction} = \frac{\text{Amount of Reactant used}}{\text{Time}} \text{ or } \frac{\text{Amount of Product formed}}{\text{Time}}$$

Chemical Formula

Ammonia	NH ₃
Water	H ₂ O
Methane	CH ₄
Hydrochloric Acid	HCl
Sulfuric Acid	H ₂ SO ₄
Nitric Acid	HNO ₃
Copper Oxide	CuO
Sodium Hydroxide	NaOH

Example of a Base = Copper Oxide

Example of an Alkali = Sodium Hydroxide

Examples of an Acid = Hydrochloric Acid