

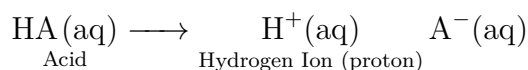
Acids, Bases and Salts

Acids

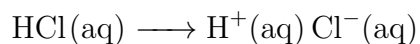
Acids furnish H^+ ions or H_3O^+ ions when dissolved in water. Acids have one or more replaceable H atoms

Arrhenius Concept of Acids

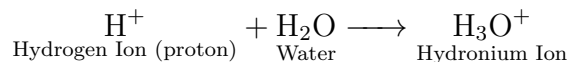
Acid is capable of producing hydrogen ion H^+ by dissociating in aqueous solution. This reaction can be represented by



For example: Hydrochloric Acid (HCl)

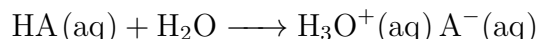


The proton or hydrogen ion binds itself to a water molecule to form a **hydronium ion** (H_3O^+)



The **hydronium ion** is also known as **oxonium ion** or **hydroxonium ion**.

The first equation can be rewritten as



Note: H^+ ions are protons.

- Acids generally have sour taste.
- Acids change Blue litmus Red.
- They are colorless with **phenolphthalein** and pink with **methyl orange**.
- Acids show acidic nature in their aqueous form.

Classification of Acids

- **Based on Source:**
 - **Organic Acids** are present in plants and animals (living beings).
Eg: HCOOH (Formic Acid), CH_3COOH (Acetic Acid)

- **Inorganic Acids** are found from rocks and minerals.

Eg: HCl (Hydrochloric Acid), HNO₃ (Nitric Acid), H₂SO₄ (Sulphuric Acid)

- **Based on their Basicity** Basicity = The number of H atoms replaceable by a base in a particular acid.

- **Monabasic Acid** gives one H⁺ ion per molecule of the acid in solution.

Eg: HCl, HNO₃

- **Dibasic Acid** gives two H⁺ ions per molecule of the acid in the solution.

Eg: H₂SO₄, H₂CO₃

- **Tribasic Acid** gives three H⁺ ions per molecule of the acid in the solution.

Eg: H₃PO₄

- **Based on Ionisation**

- **Strong Acids** ionise completely in water.

Eg: HCl

- **Weak Acids** ionise partially in water.

Eg: CH₃COOH

- **Based on Concentration**

- **Concentrated Acid** has a relatively high percentage of acid in its aqueous solution.

- **Dilute Acid** has a relatively low percentage of acid in its aqueous solution.