

Electrochemistry is that branch of chemistry which deals with the study of production of electricity from energy released during spontaneous chemical reactions and the use of electrical energy to bring about non-spontaneous chemical transformations.

Importance of Electrochemistry

1. Production of metals like Na, Mg, Ca and Al.
2. Electroplating.
3. Purification of metals.
4. Batteries and cells used in various instruments.

Conductors

Substances that allow electric current to pass through them are known as conductors.

Metallic Conductors or Electronic Conductors

Substances which allow the electric current to pass through them by the movement of electrons are called metallic conductors, e.g.. metals.

Electrolytic Conductors or Electrolytes

Substances which allow the passage of electricity through their fused state or aqueous solution and undergo chemical decomposition are called electrolytic conductors, e.g., aqueous solution of acids, bases and salts.

Electrolytes are of two types:

1. **Strong electrolytes** The electrolytes that completely dissociate or ionise into ions are called strong electrolytes.

e.g., HCl, NaOH, K_2SO_4

2. **Weak electrolytes** The electrolytes that dissociate partially ($\alpha < 1$) are called weak electrolytes, e.g.,

CH_3COOH , H_2CO_3 , NH_4OH , H_2S , etc.

standard cell

A cell of almost constant emf is called standard cell. The most common is Weston standard cell.

voltaic cell

Galvanic cell is also called voltaic cell.

Features of the electrochemical cell

1. There is no evolution of heat.
2. The solution remains neutral on both sides.
3. The reaction and flow of electrons stops after sometime.

