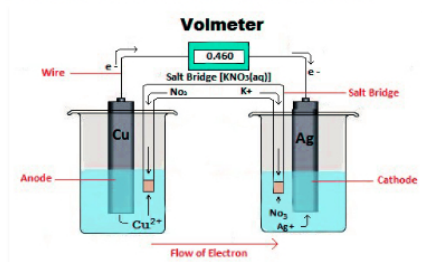


Electrochemical Cell

An electrochemical cell is a device which is capable of producing electrical energy from chemical reactions or making chemical reactions easy through the introduction of electrical energy. For example- an electrochemical cell is a standard 1.5-volt cell is meant for consumer use. This type of device is called as a single **Galvanic cell** where a battery is composed of two or more cells or connected in either single or parallel pattern.

Electrochemical Cell Diagram

Let us understand the complete working of an electrochemical cell with the help of below given diagram.



The diagram includes two beakers where one contains CuSO_4 and the other includes AgNO_3 solution. Both the rods are dipped in a solution, one of them is **Copper** rod which is dipped in the CuSO_4 solution whereas the silver rod is dipped in the AgNO_3 solution. Both the metallic rods are also termed as **Electrodes**. The solution kept in two beakers is connected with an inverted U-tube which is also known as **Salt Bridge** contains a saturated solution of KNO_3 . This solution does not go through any chemical change throughout the process. The potential difference between the two metallic rods can be easily calculated by a voltmeter which is fixed between two electrodes.

With the completion of the circuit, it can be easily seen that an electric current simply flows through the external circuit. It can be detected by putting an ammeter in the circuit. Copper rod loses its weight gradually while the concentration of Cu^{2+} ions in the solution of CuSO_4 increases. All the **silver** gets collected at one place on the silver electrode and the concentration of Ag^+ ions decreases. As electrons in the external circuit flow from copper to silver rod, the current flows from silver to copper.

Parts of an Electrochemical Cell

Electrochemical cell changes the chemical energy into electrical energy. It consists of two compartments where each of them has an electrode that is submerged in an electrolyte. The electrode is a **conductor** that is usually a metal which connects it to a non-metallic part of a circuit. This electrolyte is a fluid that conducts electricity where one of the plates is positive and other one is negative. These two plates are known as **cathode** and **anode** which are connected through a wire that completes the circuit.