



Energy storage devices

BATTERIES

Battery is an arrangement of one or more electrochemical cells connected in series or parallel that can be used as a source of direct electric current at constant voltage.

A good batteries possess the following characteristics:

1. It should be cheap and easy for construction.
2. It should be light and compact.
3. It should have long life without change in voltage.
4. It should be reusable.
5. It should be easily transported.

Classification of batteries

Based on nature of the batteries, they are classified into three types which are described below:

Primary Battery (or) Primary Cell

In these cells, the electrode reaction cannot be reversed by passing an external electrical energy through them. The cell reaction occurs only once and after use they become dead. Therefore, they are not rechargeable. These batteries are simply called as use and throw batteries.

Examples: Dry cell and Mercury cell.

They are used in Torches, Flashlights, Calculators, Transistors, etc.

Secondary Battery (or) Secondary Cell

In these cells, the electrode reaction can be reversed by passing an external electrical energy. Hence, they can be recharged by passing electric current through them and can be used again and again. They are also called as storage cells or accumulators.

Examples: Lead acid storage cell, Nickel – Cadmium cell, etc.

Flow battery (or) Fuel cell

In these cells, the reactants and electrolyte are continuously passing through the cell. Here, chemical energy is directly converted into electrical energy. The efficiency of this cell is higher than all the other conventional batteries.

Example : Hydrogen - Oxygen fuel cell.