



19CH201 - ENGINEERING CHEMISTRY

UNIT-2 - ENERGY STORAGE DEVICES

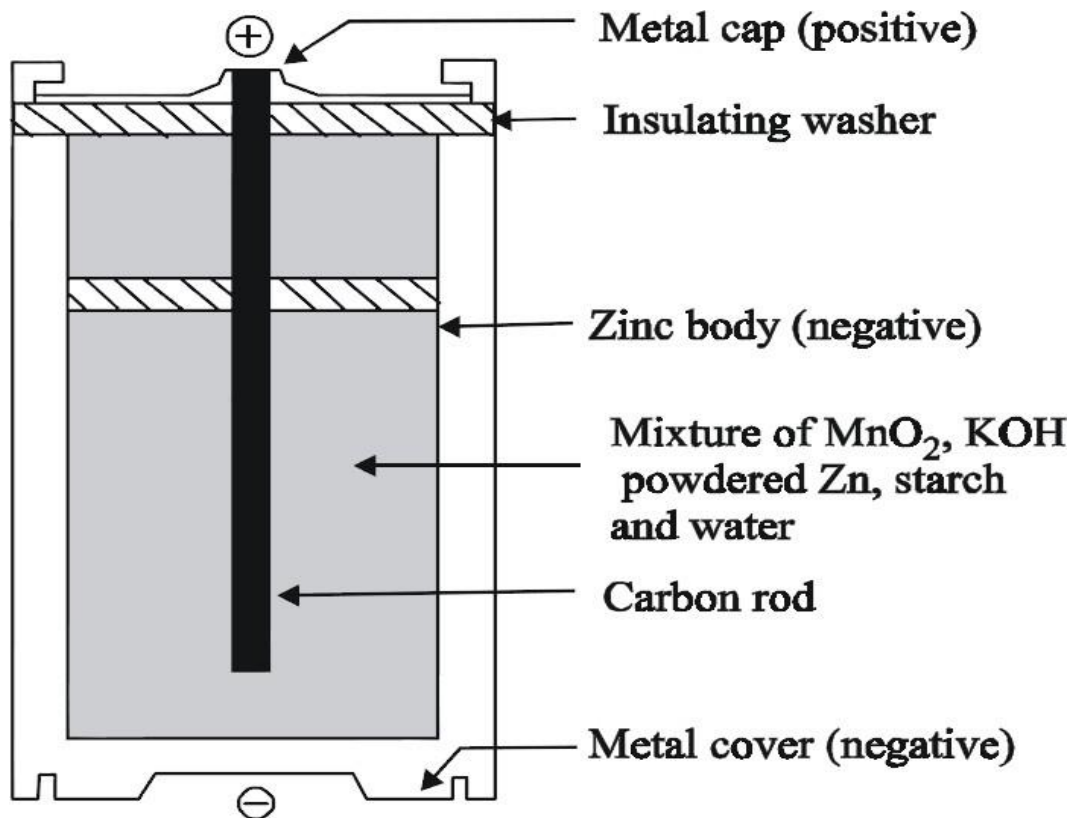
Primary battery-Alkaline battery

Description

Anode : Zn (Cylindrical body)

Cathode : Carbon rod (graphite)

Electrolyte: powdered Zn, KOH and MnO₂ in
the form of paste using starch
and water.





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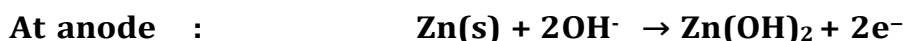
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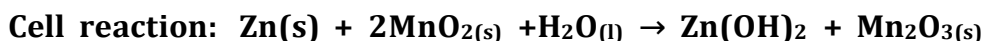
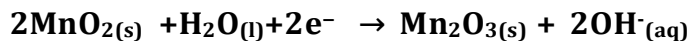
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- Alkaline battery is an improved form of the dry cell, in which the electrolyte NH_4Cl is replaced by KOH .
- Alkaline battery consists of a zinc cylinder filled with an electrolyte consisting of powdered Zn , KOH and MnO_2 in the form of paste using starch and water.
- A carbon rod (graphite) acts as cathode, is immersed in the electrolyte in the centre of the cell.
- The outside cylindrical zinc body acts as anode.



At cathode:



In cathode reaction, Mn is reduced from +4 oxidation state to +3 oxidation state

The EMF of the cell is 1.5 V

Advantages of alkaline battery over dry battery

- (i) Zinc does not dissolve readily in a basic medium.
- (ii) The life of alkaline battery is longer than the dry battery, because there is no corrosion on Zn.
- (iii) Alkaline battery maintains its voltage, as the current is drawn from it.

Uses

It is used in calculators, watches etc.,