

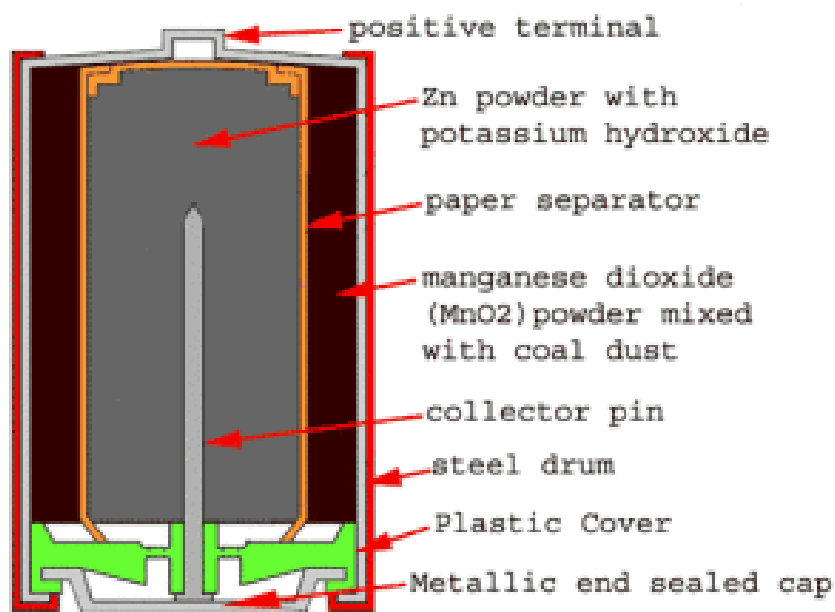
## Alkaline batteries

An **alkaline battery** is a type of primary battery which derives its energy from the reaction between zinc metal and manganese dioxide.

Alkaline battery is improved form of dry cell, in which the electrolyte  $\text{NH}_4\text{Cl}$  is replaced by  $\text{KOH}$ .

### Construction

- A carbon rod (Graphite), acts as cathode. The positive terminal of the battery is projected from the top of this drum.
- the powdered zinc is mixed with  $\text{KOH}$  &  $\text{MnO}_2$  to get a gel. It is immersed in the electrolyte in the centre of the cell
- The outside cylindrical zinc body is made up of Zinc, It acts as anode.



Alkaline Battery

### Working

The alkaline electrolyte of potassium hydroxide is not part of the reaction, only the zinc and  $\text{MnO}_2$  are consumed during discharge.

The half-reactions are:



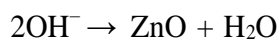
# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

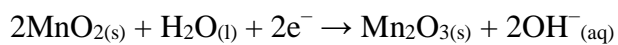


## At Anode

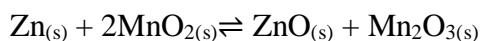
The half-reactions are:



## At Cathode



## Overall reaction:



The alkaline electrolyte of potassium hydroxide always remains in the cell, as there are equal amounts of  $\text{OH}^{-}$  consumed and produced. An alkaline battery cell is rated for 1.5 V.