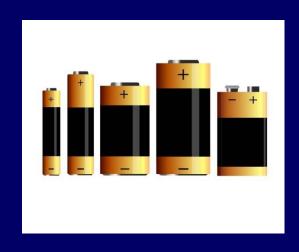
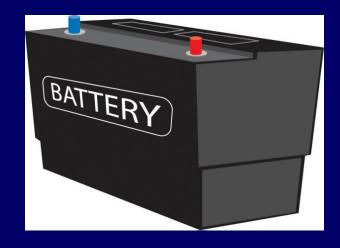


Batteries



Batteries in the workplace?

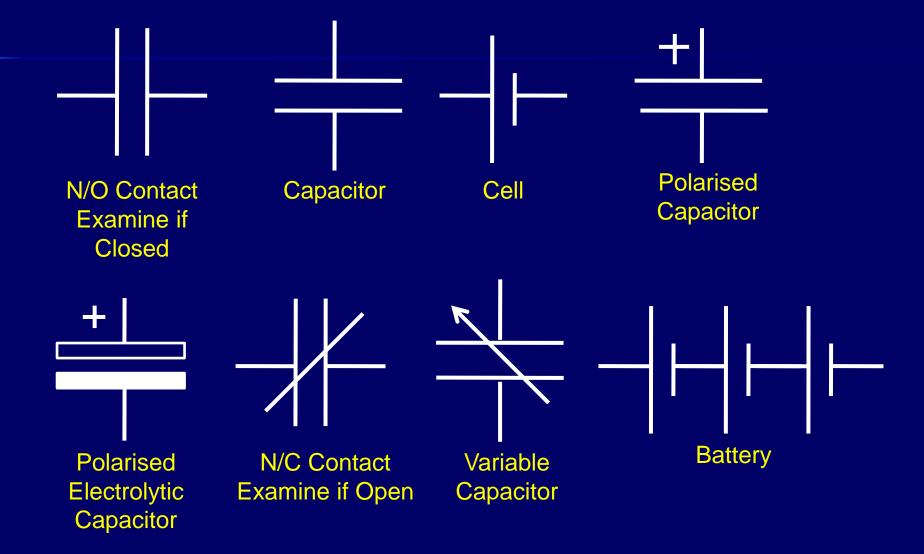








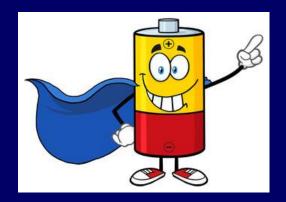
Electrical Symbols



Primary or Secondary?





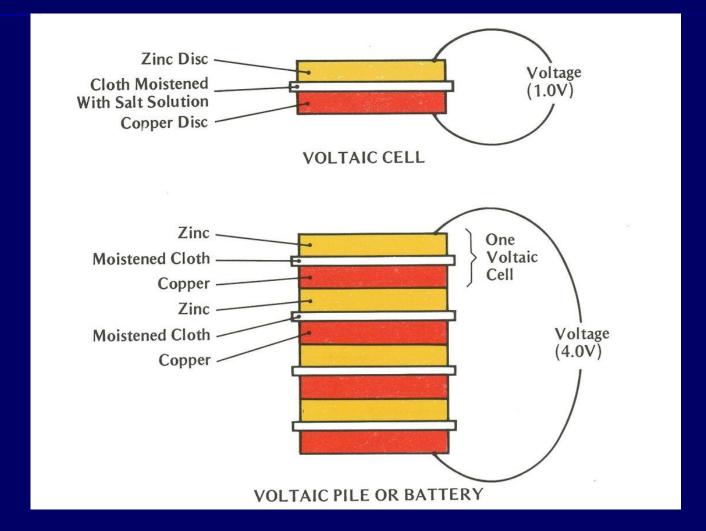


Acid or Alkaline?



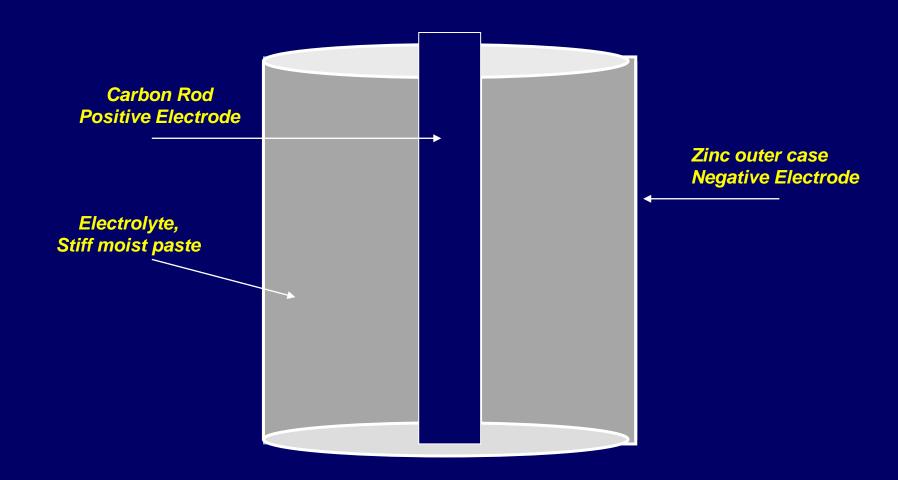


Early Primary (Circa 1800)

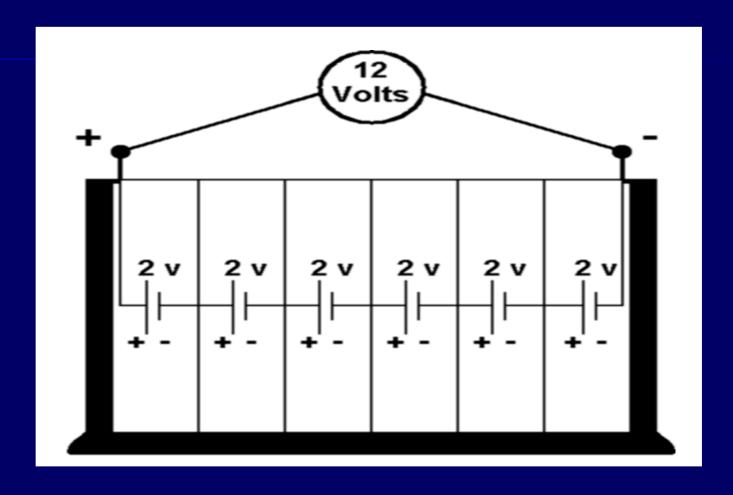




Primary Cell / Dry Battery



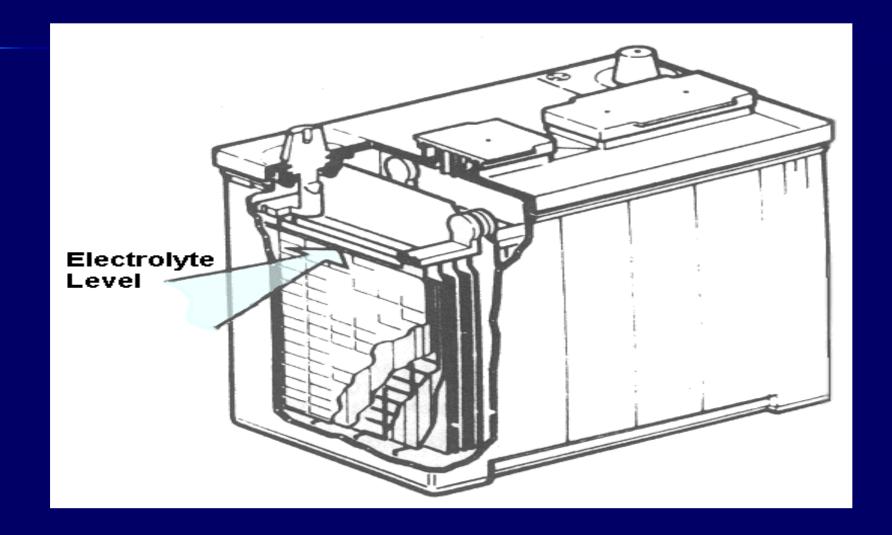




Cells are linked in **series** to increase output **voltage** i.e., a <u>battery</u> of cells

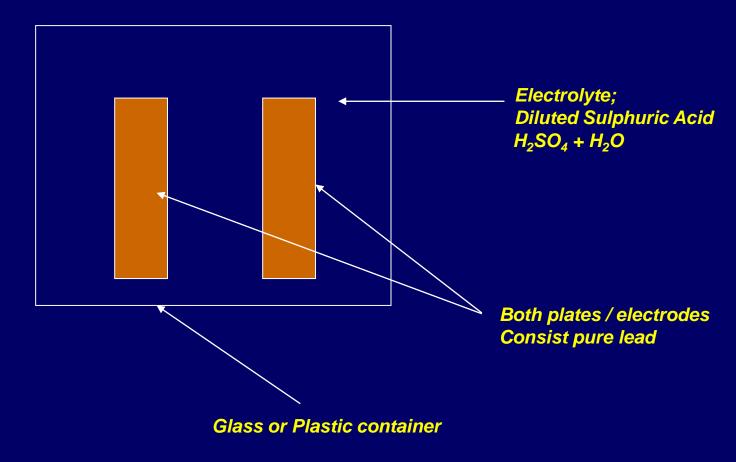


Secondary Cells





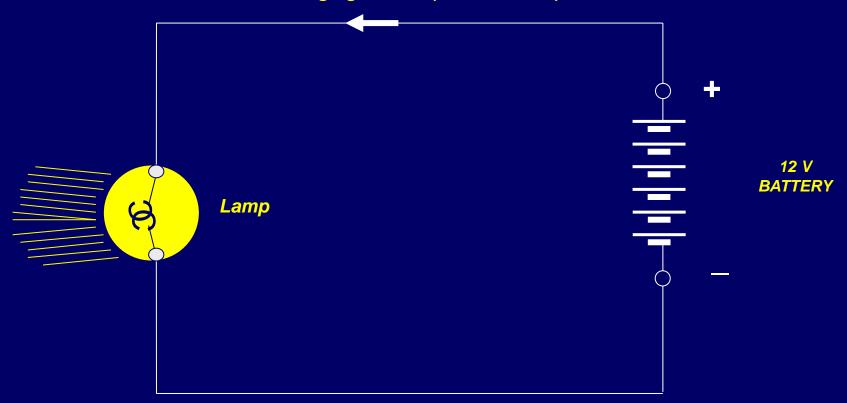
Original Lead Acid cell





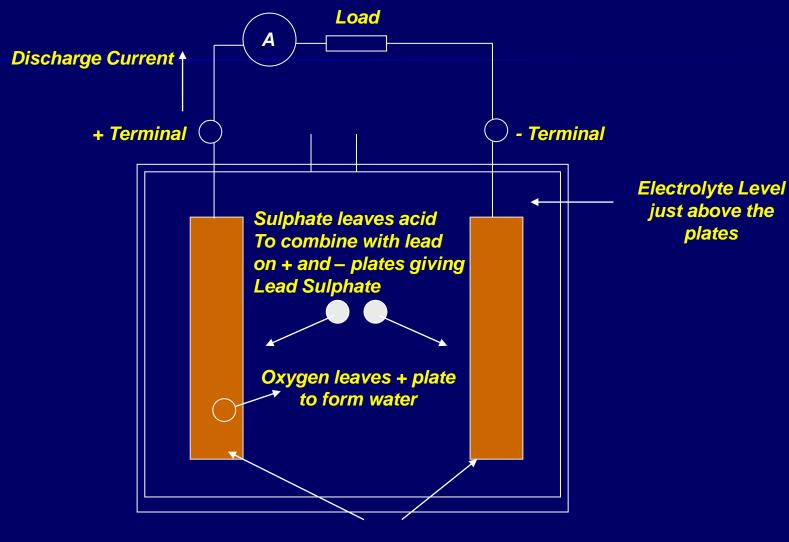
Lead Acid Battery Discharging (Electrolysis)

Discharging current (Conventional)



Discharge action of a Lead Acid battery

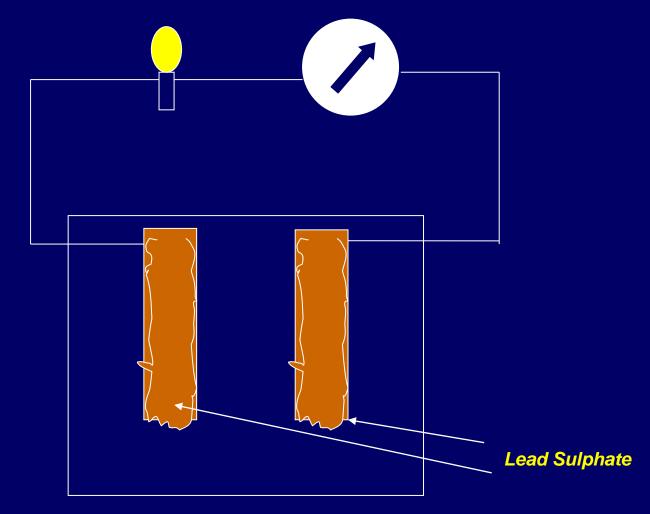




Lead Sulphate

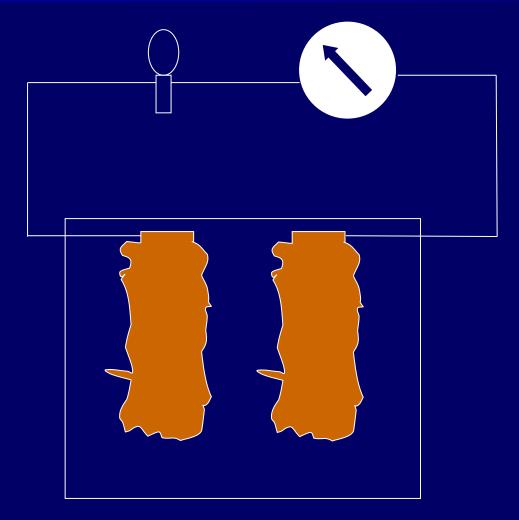


Spongy Lead



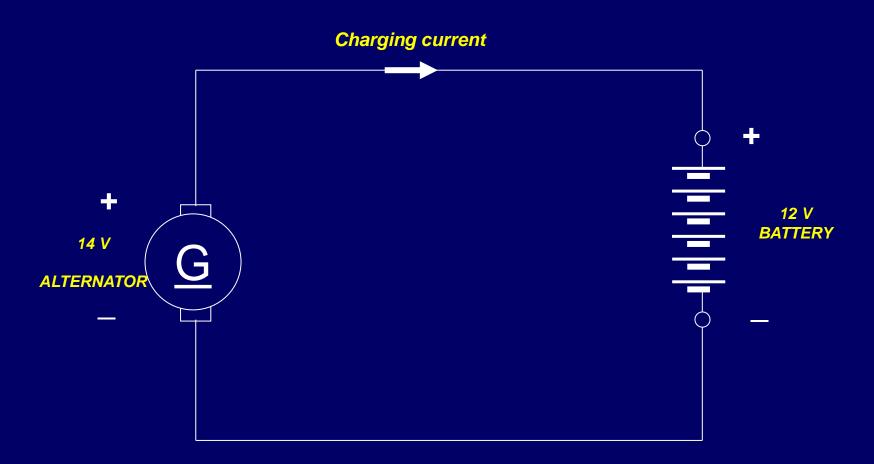


Spongy Lead



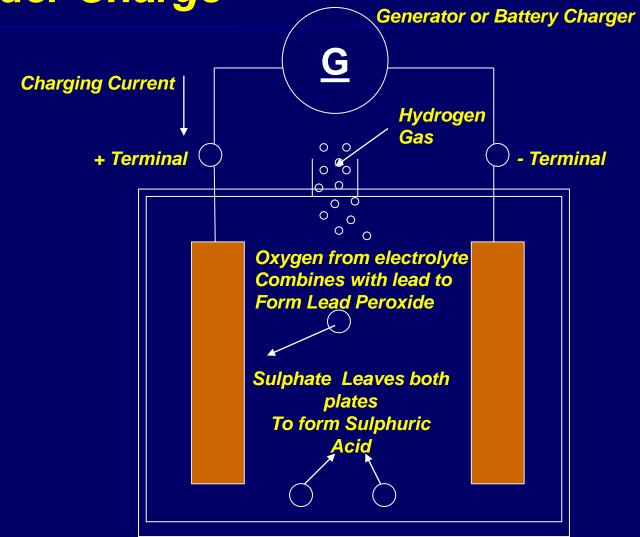


Lead Acid Battery Charging



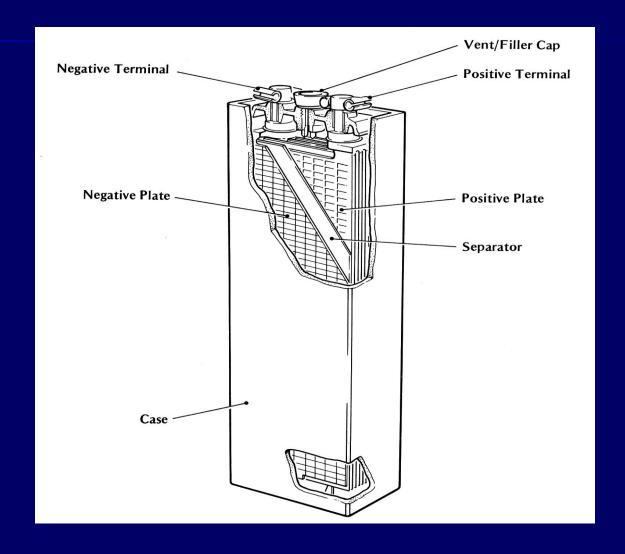


Lead Acid Battery under Charge





Typical Lead Acid Cell



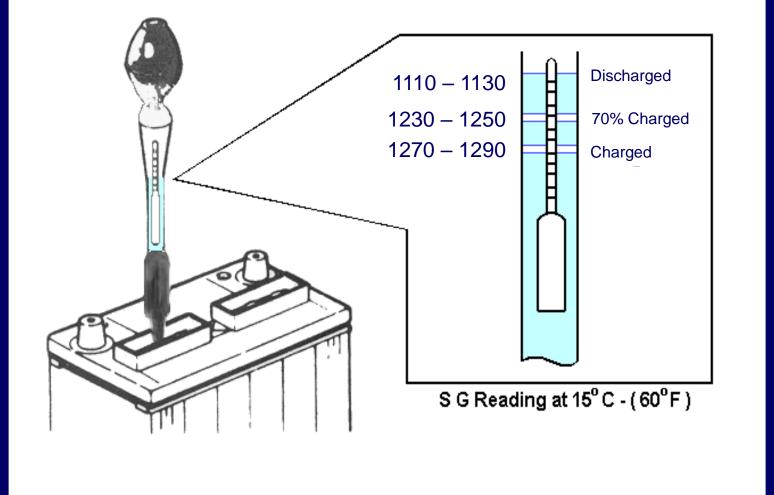


Checking off charge state of a Car Lead Acid battery with a Multimeter (2V cells)

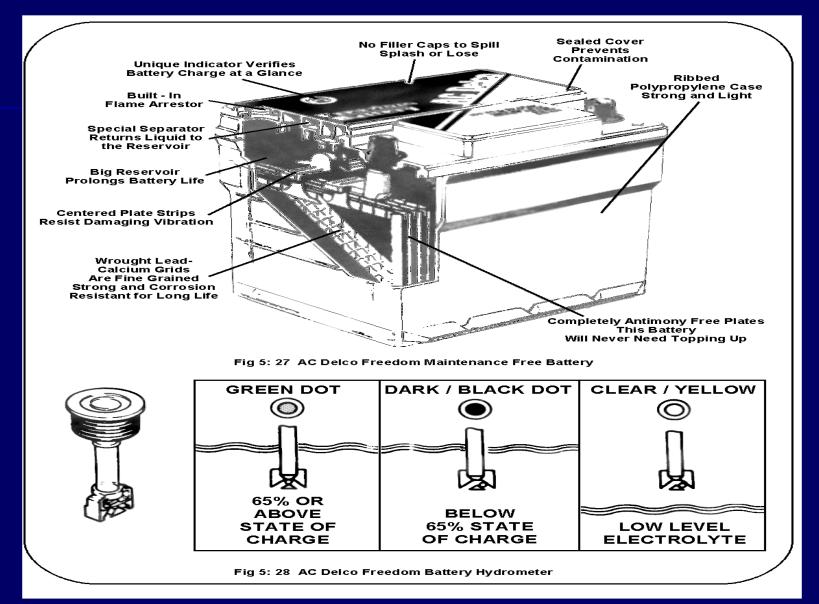
Charge %	Voltage
100%	12.6
75%	12.4
50%	12.2
25%	12.0



Checking off charge state of a Lead Acid battery with a Hydrometer

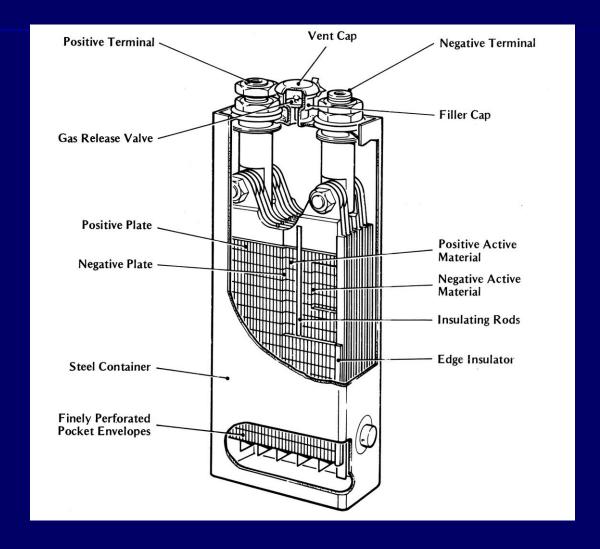






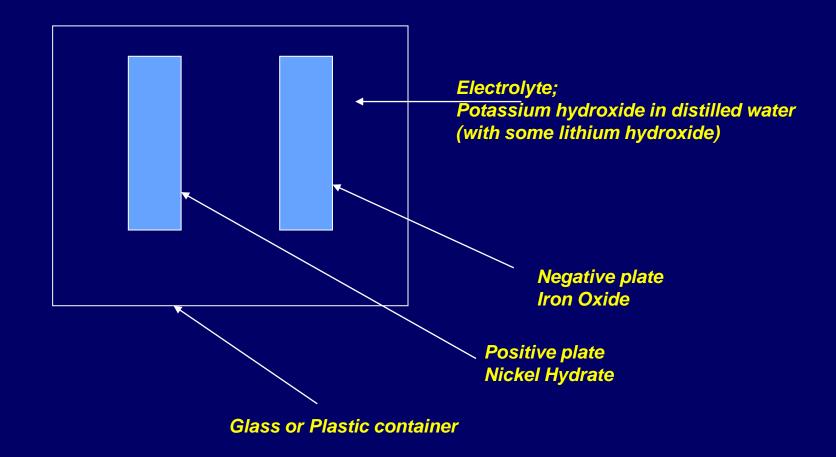


Alkaline Cells



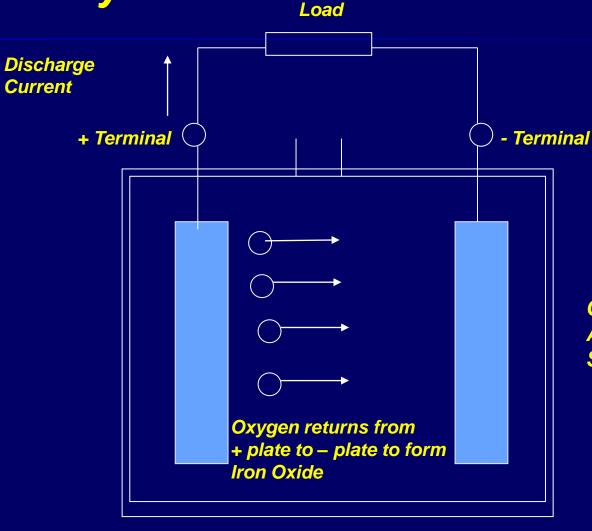


Alkaline cell





Discharge of an Alkaline Battery



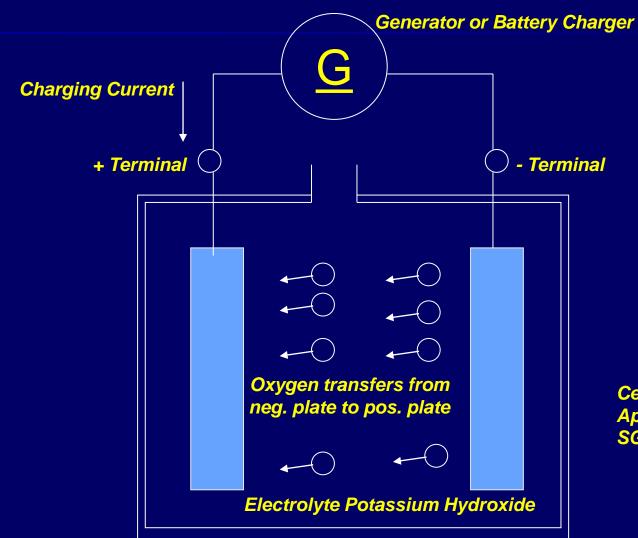
Cell voltage falls to Approx 0.8 Volts. SG Remains Stable

Nickel Hydrate

Iron Oxide



Charging a Alkaline Battery



Cell voltage rises to Approx 1.2 Volts SG Stable