Introduction

In electrochemical cell, the chemical energy is converted into electrical energy. The cell potential is related to free energy change (ΔG).The ΔG for a reaction is a measure of the maximum useful work that can be obtained from a chemical reaction.

ΔG = maximum useful work

Maximum useful work = nFE

When a cell operates, work is done on the surroundings (flow of electricity).

$\Delta G = -nFE$ (or) $\Delta G < 0$

Decrease in free energy is indicated by (–)ve sign.

One of the main uses of the galvanic cells is the generation of portable electrical energy. These cells are known as batteries.

Battery

A battery is an arrangement of several electrochemical cells connected in series that can be used as a source of direct electric current.

A Cell: It contains only one anode and cathode.