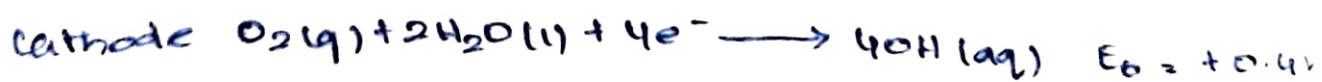
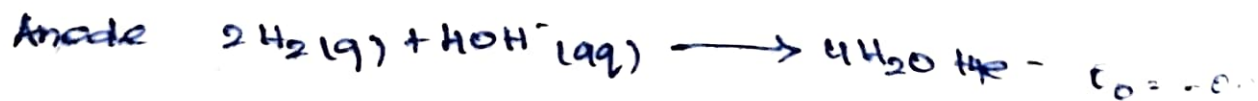


Fuel cells

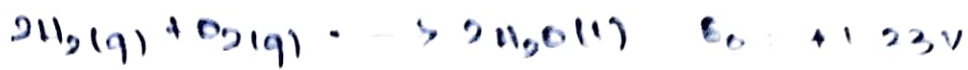
A fuel cell is an electrochemical cell in which the chemical energy of the fuel-oxidant system is directly converted into electrical energy. It is an energy conversion device or electricity generator. That the reactants are supplied from outside. This is capable of supplying current as long as it is provided with the supply of reactants.

Hydrogen-oxygen fuel cell:-

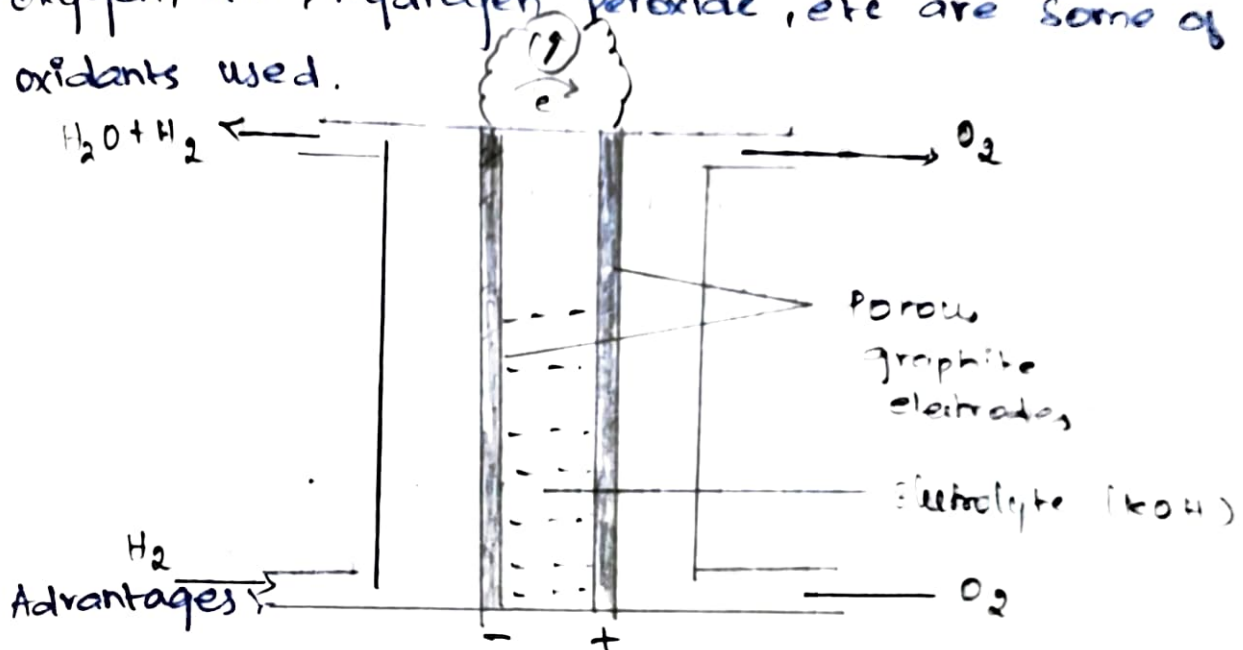
A fundamental and important example of a fuel cell is the hydrogen/oxygen cell. Like an electro-chemical cell, the fuel cell is also having two electrodes and an electrolyte. The two electrodes are made up of porous graphite admixed with nickel powder. The electrolyte used is potassium hydroxide solution maintained at 200°C and 20-40 atmosphere. Hydrogen and oxygen gases are bubbled through the anode and cathode compartments respectively. Hydrogen is oxidized at the anode whereas the oxygen gets reduced at the cathode.



The overall reaction is



The cell reaction is the same as combustion of hydrogen in air or oxygen. In the fuel cells, gaseous fuel used are hydrogen, alkanes and CO. Among the liquid fuels methanol, ethanol, etc, are very important. Oxygen, air, hydrogen peroxide, etc are some of the oxidants used.



The energy conversion efficiency is very high.

They are used as power sources in spacecrafts.

The product of a hydrogen-oxygen fuel cell is

Pure water which can be used for drinking purpose.

Noise and thermal pollution are very low.

The maintenance cost is very low.

It saves fossil fuels.