

CLAIMS

1. An electrolytic cell having an electric circuit comprising an anode and a cathode separated by a hydrogel membrane,
wherein the hydrogel membrane comprises a hydrophilic polymer and acts as an electrolyte.
2. An electrolytic cell according to claim 1 wherein water absorbed by the polymer is electrolysed when an electric current passes through the electric circuit.
3. An electrolytic system comprising a plurality of electrolytic cells according to claim 1, the electrolytic cells being arranged in a stack such that each electrolytic cell is in electrical connection with at least one adjacent electrolytic cell.
4. A method of electrolysis, the method comprising the steps of;
locating a hydrogel membrane comprising a hydrophilic polymer between an anode and a cathode of an electric circuit,
absorbing liquid into the hydrogel membrane,
passing an electric current through the electric circuit.
5. A method of electrolysis of water, the method comprising the steps of;
locating a hydrogel membrane comprising a hydrophilic polymer between an anode and a cathode of an electric circuit,
absorbing water into the hydrogel membrane,
passing an electric current through the electric circuit such that the water in the hydrogel membrane is reduced to hydrogen at the cathode and oxygen forms at the anode.