Electrochemistry 1

Chemistry – Leaving Cert

Quick Notes

Electrochemistry 1

Electrolysis is the use of electricity to bring about a chemical reaction, as brought about by Humphry Davy. The electrolyte is the substance through which the electric current is passed. The electrodes are the two rods that dip into the electrolyte and make electrical contact with it. Electrodes are often made of carbon or platinum. Oxidation takes place at the positive electrode – anode. Reduction takes place at the negative electrode – cathode. Inert electrolytes do not react with the electrolyte e.g. graphite. Electrolysis of potassium iodide using inert electrodes, a pink colour appears at the negative electrode and a brown colour appears at the positive electrode. Electrolysis of acidified water using inert electrodes may be carried out in a Hofmann voltameter or using inverted test tubes. Electrolysis of sodium sulfate solution using inert electrodes can also be carried out using the Hofmann voltameter. When copper sulfate is electrolysed using copper electrodes, the mass of the positive electrode decrease and the mass of the mass of the negative electrode increases. Electroplating is a process where electrolysis is used to put a layer of one metal on the surface of another. Electroplating may be used to make metals appear more attractive e.g. cutlery or to protect an object against corrosion e.g. bath fittings. The electrochemical series is a list of elements in order of their standard electrode potential. Electrode potential describes the tendency of a metal to lose electrons. Elements near the top of the table will be more reactive as they have a greater tendency to lose electrons. A metal will displace a metal that is below it in the electrochemical series from a solution of its ions. A galvanic cell AKA voltaic cell is a cell in which a chemical reaction results in the production of an electric current.