

ELECTROCHEMICALLY SYNTHESISED CONDUCTING POLYANILINE FOR ELECTRONIC AND OPTICAL APPLICATIONS

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Since the discovery of the new exciting physics and chemistry of conducting polymers, it is possible to change the electrical conductivity of the polymer from insulating to highly conducting states by incorporating suitable ions into the polymer. This process is often referred to as doping. In this communication we report experimental result on doping polyaniline, one of the versatile conducting polymers.

Polyaniline films were formed by electropolymerization from 0.1M aniline solution in HCl, camphorsulfonic acid (HCSA), ethanedisulfonic acid (EDSA) supporting electrolytes. It has been observed that the kinetics of the electrochemical doping of polyaniline films depends on the history of the electrochemical events undergone by the film. For example, the current associated with the oxidation increases with waiting time at a given potential, indicating that longer waiting time allows for better recovery of the residual charge.

In order to determine the influence of counter ions on the redox properties of polyaniline, the polymer films were prepared and cycled in solutions containing various functionalized acids. Results obtained indicate that the properties like structure, conductivity and air stability of polyaniline, depend upon the nature and extent of doping and waiting time.

