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Cloth rechargeable battery

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During past two decades, there has been an explosive growth of research in the field of conducting polymers because of their interesting electrical properties and their potential application in various fields such as electrochromic displays, electronic devices, energy storage systems, and chemical sensors. The electrochemical deposition of conducting polymers on carbon substrates has been studied with the goal of improving the mechanical properties of these polymers to use them as electrodes in different applications: batteries, sensors, capacitors or electrochromic displays. Several composites have been proposed to improve the performance of Polymer batteries. They play a crucial role in research towards developing new high energy density batteries due to their certain unique properties such as easy thin film formation, processability, light weight, elasticity, etc. Polyaniline (PANi), due to its environmental stability, high degree of processability and interesting redox properties associated with its chain heteroatom and high conductivity has been one of the most extensively studied electrochemical active polymers during the past 20 years.

In this work, the polyaniline was deposited by constant current potential, scanning potential, pulse potential, constant current and pulsed current methods on the carbon cloths. In continuation, the deposition of PANi and graphite on the carbon cloths was compared to that without graphite in order to select a suitable cathode for Zn- PANi Battery.

The results showed that some of the key factors such as discharge capacity, coulombic efficiency and specific energy were better for batteries with PANi -G than that with PANi only. Also, different electrochemical procedures for deposition were investigated for two cathodes.

References

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