

Current collector-conductive polymer-silver (cc-cp-Ag) composite electrodes for metal-air batteries

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Abstract

Novel current collector-conductive polymer-silver (cc-cp-Ag) composite electrodes were prepared and studied. Composite electrodes were prepared electrochemically, using a layer by layer deposition process. Electrochemical deposition of layers ensures good electrical contact between composite electrode components and electrolyte. Due to the layered structure of the composite electrode, even small quantities of silver (Ag) catalyst exhibit high oxygen reduction activity. Modification of silver (Ag) and conductive polymer (cp) deposition conditions affected oxygen reduction activity of the composite electrode. This is a transferrable concept that can be extended to prepare 2D and 3D layered composite electrodes, and composite electrode examples in both planar and three dimensional geometries will be presented. The results presented here will facilitate development of non-aqueous metal air batteries.