

A Review of Magnesium Air Battery Systems: From Design Aspects to Performance Characteristics

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Abstract : Metal-air batteries have been designed and developed as an essential source of electric power to propel automobiles, make electronic equipment functional, and use them as the source of power in remote areas and space. High energy and power density, lightweight, easy recharge capabilities, and low cost are essential features of these batteries. Both primary and rechargeable magnesium air batteries are highly promising. Our focus will be on the basics of electrode reaction kinetics of Mg-air cell in this paper. Design and development of Mg or Mg alloys as anode materials, design and composition of air cathode, and promising electrolytes for Mg-air batteries have been reviewed. A brief note on the possible and proposed improvements in design and functionality is also incorporated. This article may serve as the primary and premier document in the critical research area of Mg-air battery systems.

Keywords : air cathode, battery design, magnesium air battery, magnesium anode, rechargeable magnesium air battery

Conference Title : ICEEE 2021 : International Conference on Electrochemistry and Electrochemical Engineering

Conference Location : New York, United States

Conference Dates : June 03-04, 2021