A Novel Approach to Preparing Highly Active and Oxidatively Stable Mg^{2+} Electrolytes for Mg Batteries

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Abstract: High energy density and low material cost battery systems are regarded as potential approaches for large scale energy storage from sustainable sources and as power sources for diverse applications such as portable devices and electric cars. Compared to traditional battery systems such as Li-ion battery and Lead-acid battery etc., multi-valent Mg battery is highly attractive because of its high energy density, operation safety, and environmental benignness. One of grand technical hurdles to develop practical rechargeable Mg batteries has been the lack of electrochemically active and oxidatively stable Mg^{2+} electrolytes. Here we report a simple synthetic approach to Mg^{2+} electrolytes. These new electrolytes exhibit high current density, exceptional oxidation stability and viable coin-cell performance.

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