Bimetallic Prussian Blue Analogues: An Efficient Electrode Alternative for Energy Storage Applications

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ABSTRACT

In the past few years Prussian Blue Analogues (PBAs), as advanced metal organic framework compounds, have gathered a lot of attention due to its three-dimensional structural network and properties. PBAs are famous for their multitasking ability as they have shown an efficient role in scientific research and development with their excellent performance in various fields like, electrochemical sensors, photocatalysis, electrocatalysis, and energy storage applications. Apart from their high-tech productivity, PBAs also have some other advantages associated to them such as benign nature, economical and facile synthesis, extensive surface properties, higher theoretical capacity and exceptional electrochemical behavior which makes it more promising material for energy storage application. To further tune its properties according to the application of interest, the chemical modification by metal incorporation is the most commonly adopted strategy. For this purpose, the major research is done in the synthesis of bimetallic PBAs. The presence of metal atoms with different oxidation states can bring about dramatic reinforcements like finer microstructures with better crystallographic features, ultimately giving rise to more stable electrochemical behavior. In this article, we aim to list out all the bimetallic PBAs with focus on the synergistic effect of more than one metal within the structure of PBA and thorough analysis of their Electrochemical properties in energy storage applications.

KEYWORDS: Prussian Blue Analogues, Metal Organic Framework, Three-Dimensional Network Energy Storage, Capacity, Cyclic Stability.

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