Review

Two-dimensional MXenes for Energy Storage

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Abstract: A growing family of MXenes, *i.e.*, layered transition metal carbides and/or nitrides, has been becoming an important candidate of electrode material for new-concept energy storage devices due to their unique properties. This article timely and comprehensively reviewed state-of-the-art progress on electrochemical performance and mechanism of MXenes and their hybrids containing small molecules, polymers or oxides when utilized as crucial materials in energy storage devices, including ion batteries, supercapacitors, and ion capacitors as well as hydrogen storage. The relation between electrochemical performance and structure has been deeply explored in the aims of revealing the influence of logical combinations of chemical/physical properties, microstructure, steric configuration, and material compositions on the electrochemical performance of corresponding electrodes. The possible directions of development for MXene were also pointed out for further researches and potential applications.

Keywords：Two-dimensional MXenes, Energy Storage, Review

1. Introduction