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Bi-metallic MXenes Mo2V2C3T2 (T = O, F, OH) for energy storage devices. Atomisitics insigts on ion-adsorption process

MXenes materials have shown good electrochemical properties for energy storage such as metallic behavior, high electrical conductivity and low energy barriers for ions diffusion. Recent studies have shown that bi-metallic MXenes, such as $Ti_2Ta_2C_3$, exhibit superior electrochemical behavior compared to monometallic counterparts, offering potential for extended lifespan in energy storage systems, as Maldonado-Lopez reports in 2022 [1]. This study reports the functionalization of bi-metallic MXene Mo_2V_2C_3 with O, F, and OH. Moreover, highlights the significance of bi-metallic MXenes and surface functionalization in advancing energy storage technologies, suggesting avenues for improving cycling stability and energy efficiency in next-generation energy storage devices. Our results suggest that the oxidized phase grants a better performance as anode in batteries, and the Li-ion offers a higher gravimetric capacity.

Keywords

MXenes Materials

Reference

Maldonado-Lopez, Daniel; et al., Atomic-Scale Understanding of Li Storage Processes in the Ti4C3 and Chemically Ordered Ti2Ta2C3 MXenes: A Theoretical and Experimental Assessment ACS Appl. Energy Mater. 2022, 5, 2, 1801−1809

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Author approval

I confirm

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