

Magnesium/chloride co-doping of lithium vanadium phosphate

cathodes for enhanced stable lifetime in lithium-ion batteries

Shuting Sun^a, Ruhong Li^a, Deying Mu^a, Zeyu Lin^a, Yuanpeng Ji^a, Hua Huo^a, Changsong Dai^{a*}, and Fei Ding^b

Figures

Fig. S1. (a) The initial charge-discharge curves of $\text{Li}_3\text{Mg}_{0.2}\text{V}_{1.8}(\text{PO}_{4-x}\text{Cl}_x)_3$ (LVMPCl-3x/C, 3x=0.06, 0.12, 0.18 and 0.24) at 0.1 C rate. (b) The cycling performance of the samples at 0.5 C rate. (c) Electrochemical impedance spectra of the samples after 100 cycles. (d) CV curves of LVMPCl-3x/C (3x=0.06, 0.12, 0.18 and 0.24) in the 100th cycle with a scanning rate of 0.1 mV s⁻¹.

Fig. S2. XRD structural refinements of (a) LVP/C and (b) LVMP/C.

Fig. S3. Raman spectra of LVP/C, LVMP/C and LVMPCl/C.

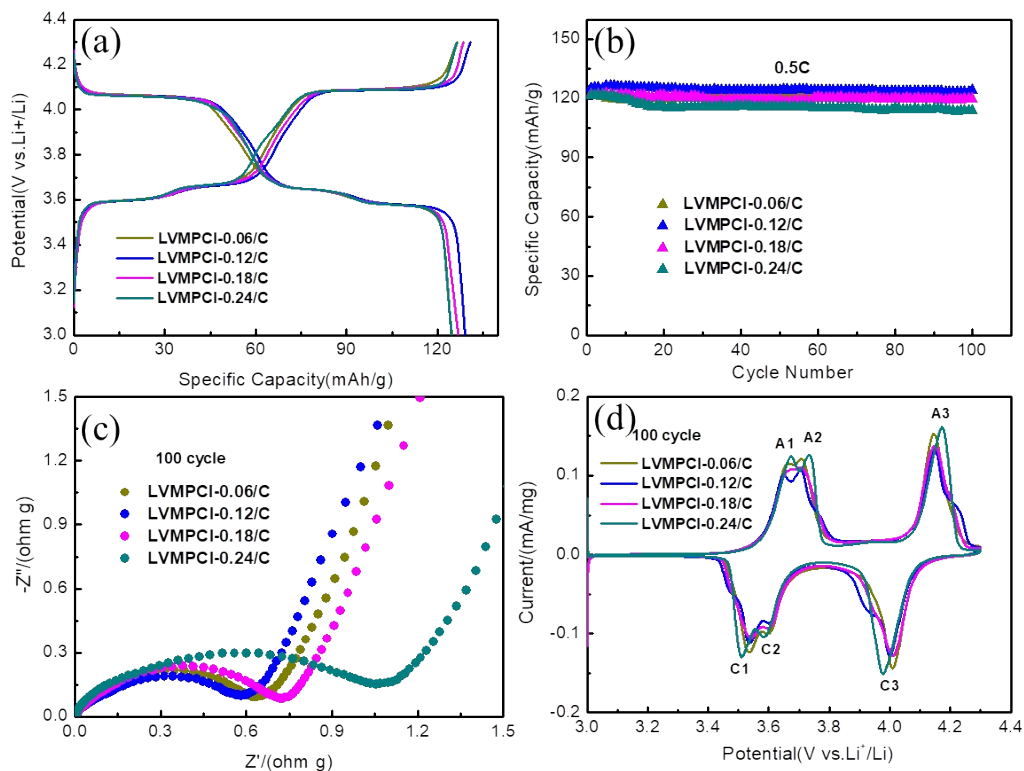


Fig. S1. (a) The initial charge-discharge curves of $\text{Li}_3\text{Mg}_{0.2}\text{V}_{1.8}(\text{PO}_{4-x}\text{Cl}_x)_3$ (LVMPCl-3x/C, $3x=0.06, 0.12, 0.18$ and 0.24) at 0.1 C rate. (b) The cycling performance of the samples at 0.5 C rate. (c) Electrochemical impedance spectra of the samples after 100 cycles. (d) CV curves of LVMPCl-3x/C ($3x=0.06, 0.12, 0.18$ and 0.24) in the 100th cycle with a scanning rate of 0.1 mV s^{-1} .

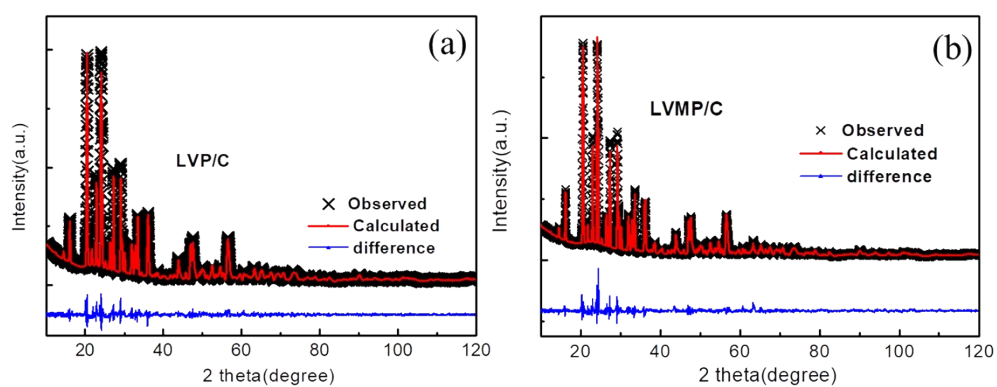


Fig. S2. XRD structural refinements of (a) LVP/C and (b) LVMP/C.

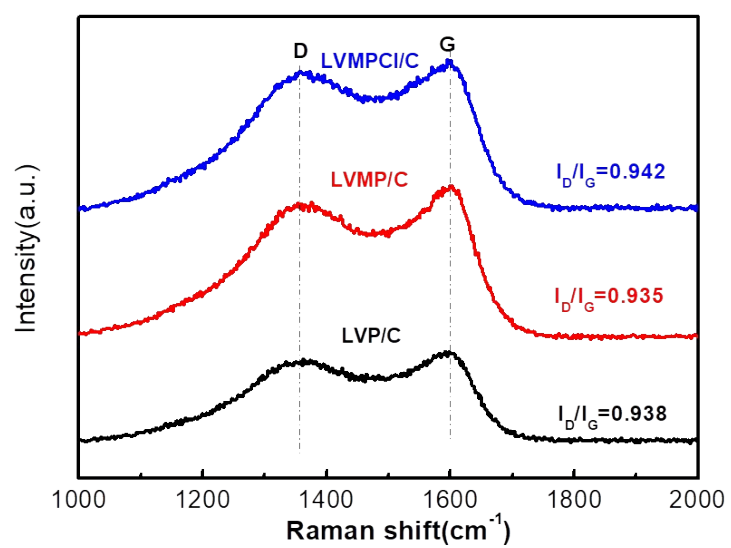


Fig. S3. Raman spectra of LVP/C, LVMP/C and LVMP/Ci/C.