Supporting information



Figure S2 Static contact angles of Zn anode in BE (a) and GVL3 electrolytes (b)



Figure S3 EDS spectrum of the Zn foil in BE (a) and GVL3 electrolyte (b) after 7 d immersion



Figure S4 Cycling curves of Zn||Cu asymmetric cells in GVL3 at 3 mA/cm²-0.5 mA·h/cm²



Figure S5 Cycling curves of Zn||Cu asymmetric cells in BE at 3 mA/cm²-0.5 mA·h/cm²



Figure S6 EIS results before and after cycling



Figure S7 "Reservoir" for evaluating average CE of plating and stripping



Figure S8 Cycling performance of Zn||Zn symmetric cells with a higher Zn utilization rate of 80% DOD



Figure S9 (a) SEM image of the $NH_4V_4O_{10}$; (b) XRD pattern of the $NH_4V_4O_{10}$



Figure S10 (a) Cycling performance of the $Zn||NH_4V_4O_{10}$ battery assembled with GVL3 electrolyte; (b) The corresponding charge-discharge curves