**Supporting Information**

**Exploration of K₂Ti₈O₁₇ as the Anode Materials for Potassium-ion Batteries**

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![XRD pattern and SEM image](image)

**Fig. S1.** (a) The XRD pattern of the bulk K₂Ti₈O₁₇ prepared by solid state method; (b) The SEM image of the bulk K₂Ti₈O₁₇.
Fig. S2. EDS analysis of the heat-treated K$_2$Ti$_8$O$_{17}$. 
Fig. S3. (a) The 1st, 2nd, 3rd and 10th discharge/charge curves of the bulk K₂Ti₆O₁₇ at the current density of 20 mA g⁻¹ in the voltage range of 0.01 ~ 3 V versus K⁺/K; (b) Cycling performance at the current density of 20 mA g⁻¹.
Fig. S4. (a) XPS spectra of Ti 2p after 50 cycles when charged to 3.0 V; (b) XPS spectra of Ti 2p after 50 cycles when discharged to 0.01 V.
Fig. S5. EIS of the $K_2Ti_8O_{17}$ electrodes before cycle and after 3 cycles.