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Electronic Supplementary Information for

Cotton derived porous carbon via an MgO template method for high performance lithium ion battery anode

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Cotton fibers



Figure S1. SEM images of the cotton fibers and the cotton fibers absorbed with $Mg(NO_3)_2$.



Figure S2. XRD patterns of the samples after heat treatment at 800 °C for 2 h under Ar.



Figure S3. SEM images of the samples after heat treatment at 800 °C for 2 h under Ar.



Figure S4.



Figure S4. EDS spectra of the samples after heat treatment at 800 °C for 2 h under Ar.



Figure S5. EDS spectra of the obtained Mg15 sample after acid leaching. The spectra for samples Mg5, Mg10 and Mg20 are similar. The peak corresponding to Mg element is neglectable, indicating the removing of MgO template by acid leaching.



Figure S6. CV curves for samples Mg5, Mg10 and Mg20.



Figure S7. Coulombic efficiency of the electrodes cycled at 0.5 A g⁻¹.



Figure S8. Cycling performance of the carbon samples annealed at different temperature.



Figure S9. SEM images of the Mg15 electrode after cycling. The electrode was cycled at 1 A g^{-1} for 250 cycles.