Electronic Supporting Information

Self-templating synthesis of double-wall shelled vanadium oxide hollow microspheres for high-performance lithium ion batteries

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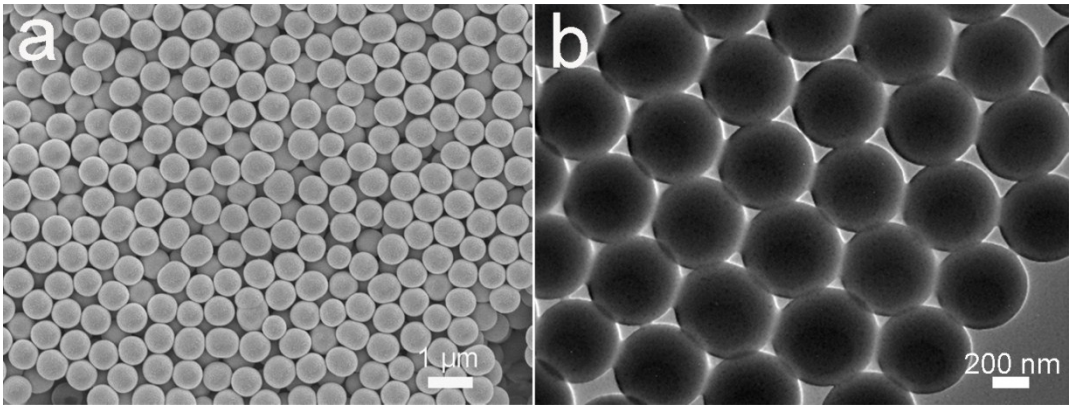

Fig. S1. (a) FESEM and (b) TEM image of the vanadium precursor microspheres prepared at 200°C for 12 h using 1 mL of prepared VOC_2O_4 solution.

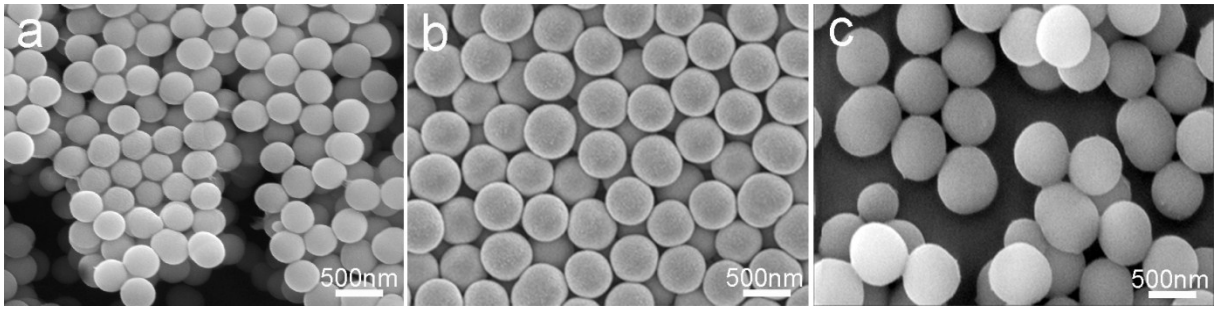

Fig. S2. SEM images of the precursor spheres prepared with different reaction durations. (a) 8 h, (b) 12 h, and (c) 16 h.

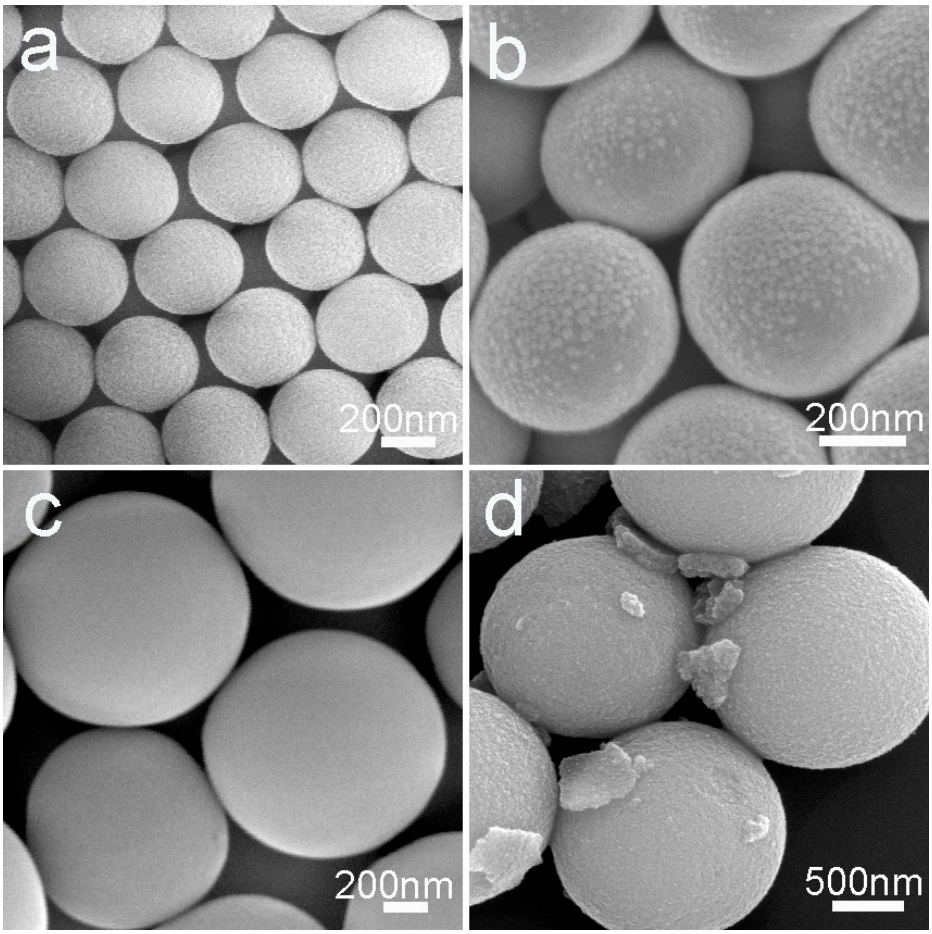

Fig. S3. SEM images of the precursor spheres solvothermally obtained from (a) 0.5 mL, (b) 1 mL, (c) 2 mL, and (d) 4 mL of prepared VOC_2O_4 aqueous solution.

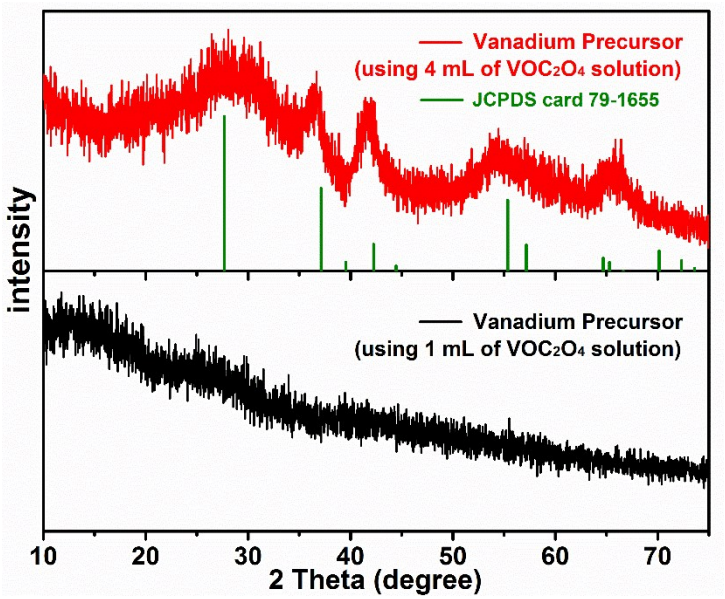

Fig. S4. XRD of the vanadium precursor prepared at 200 °C for 12 h using 1 mL or 4 mL of prepared VOC_2O_4 solution.

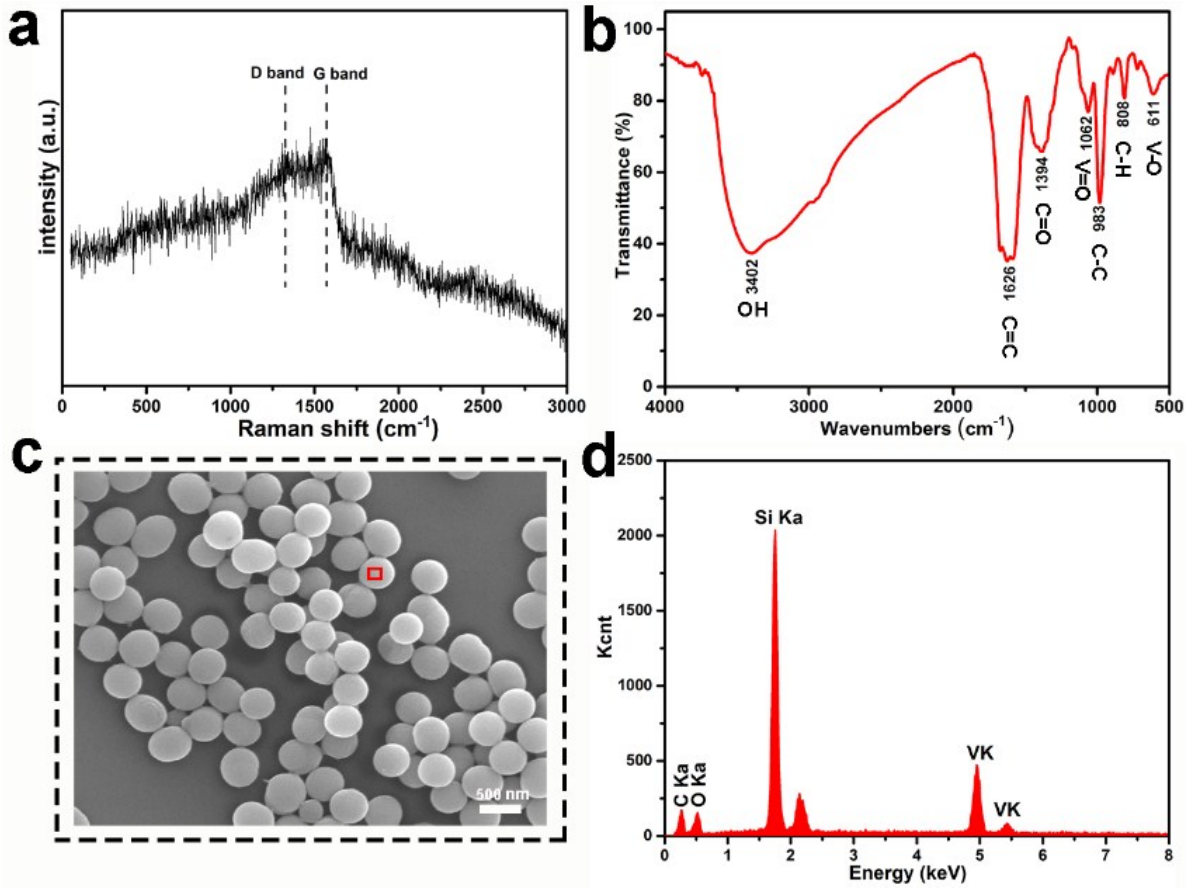

Fig. S5. Raman scattering spectrum (a), FTIR spectra (b), SEM image (c) and EDX spectrum (d) of the vanadium precursor microspheres.

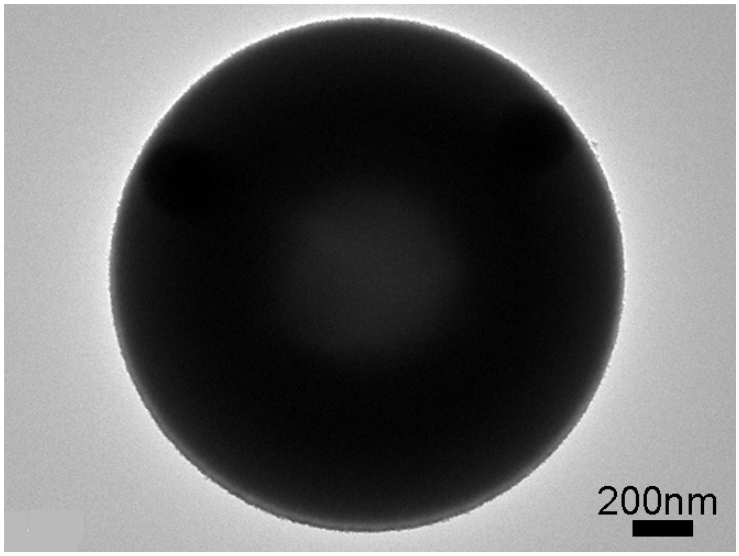

Fig. S6. TEM image of the vanadium precursor prepared at 200 °C for 12 h using 4 mL of prepared VOC_2O_4 solution.

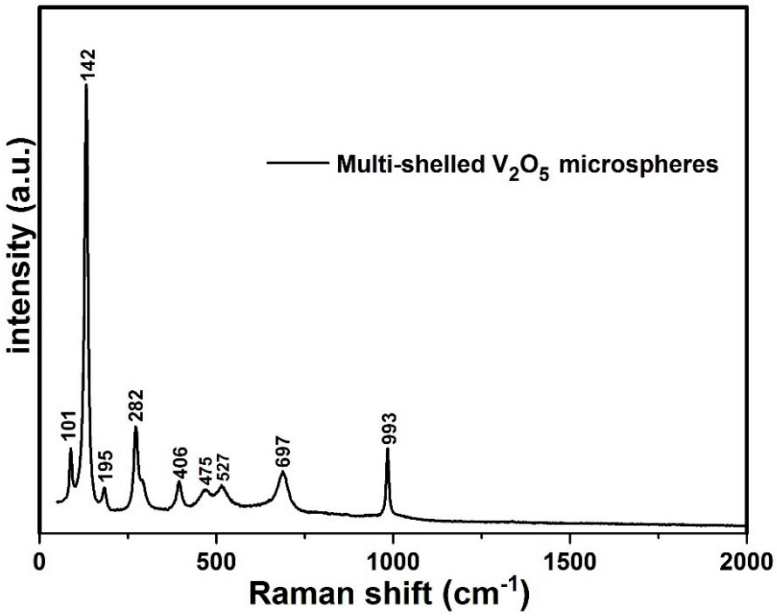

Fig.S7 Raman spectrum of the multi-shelled V_2O_5 microsphere.

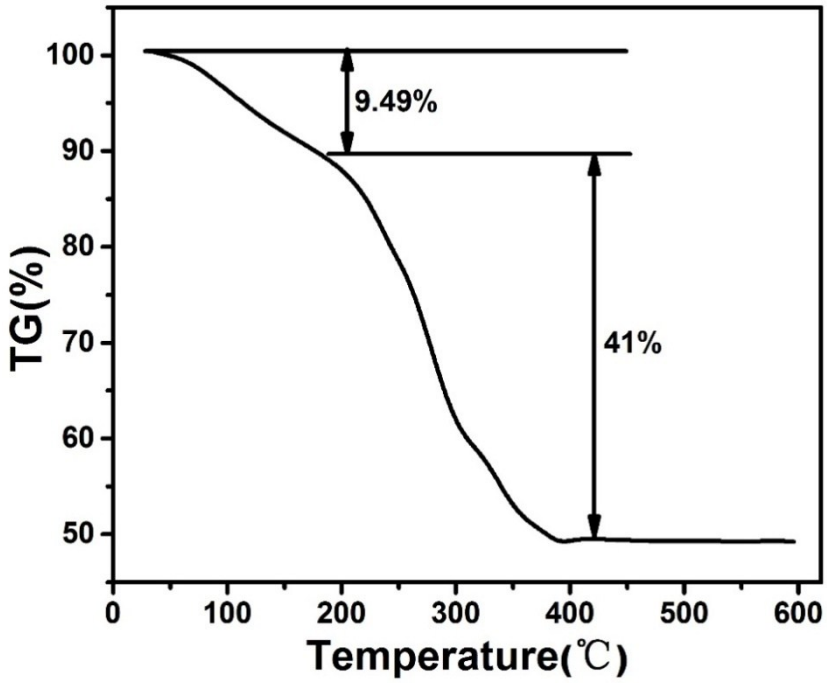

Fig. S8. TG results of vanadium precursor spheres with size of 600 nm under air flow with a temperature ramp of 5 °C min^{-1}.

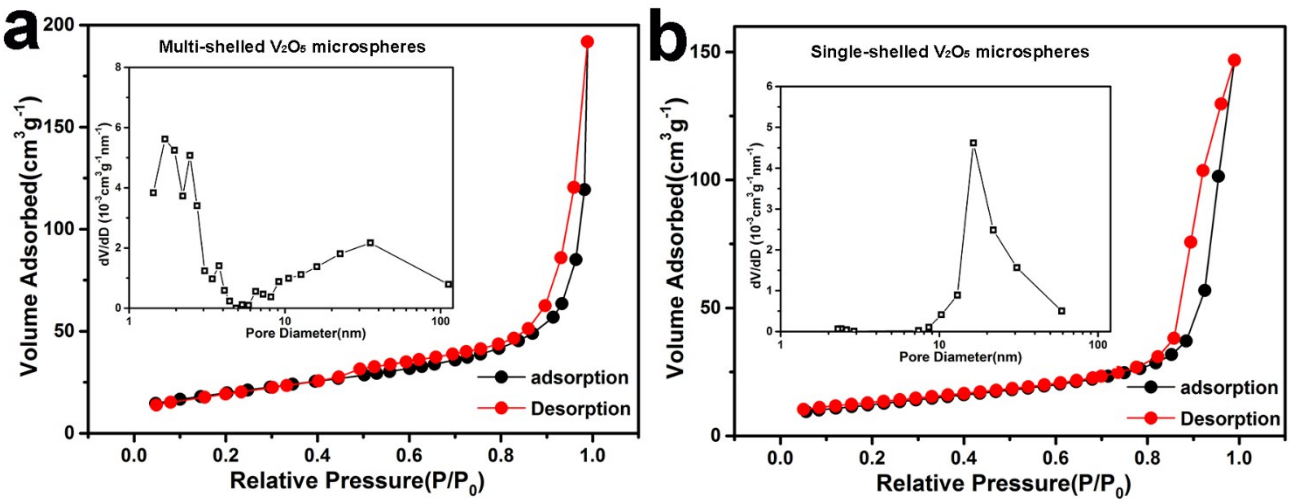

Fig. S9. Nitrogen adsorption-desorption isotherms and corresponding pore size distribution curves (the inset) of multi-shelled V_2O_5 microspheres (a) and single-shelled V_2O_5 microspheres (b).