

Supporting Information (SI) for:

**Precursor-mediated synthesis of double-shelled V₂O₅ hollow
nanospheres as cathode material for lithium-ion batteries**

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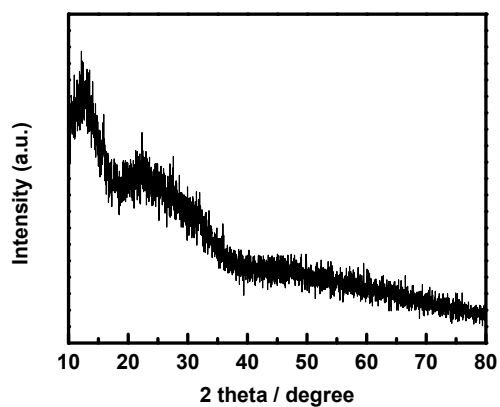


Fig. S1 XRD pattern of the V-gly sample, it showed diffraction peaks similar to those of previously-reported polyols-based metal alkoxides.¹⁻³

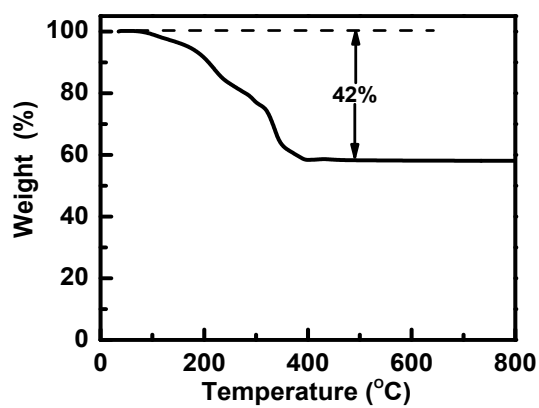


Fig. S2 The thermogravimetric (TG) curve obtained in air for the V-gly precursor.

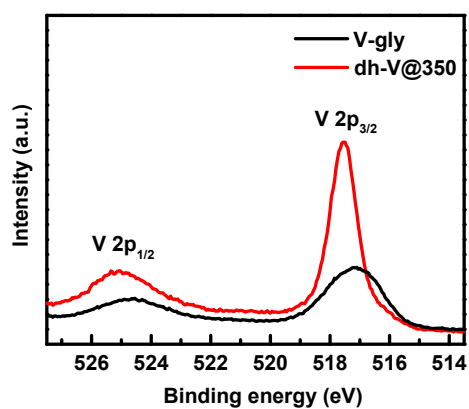


Fig. S3 The general XPS spectra for V 2p_{3/2} and V 2p_{1/2} in V-gly and dh-V@350.

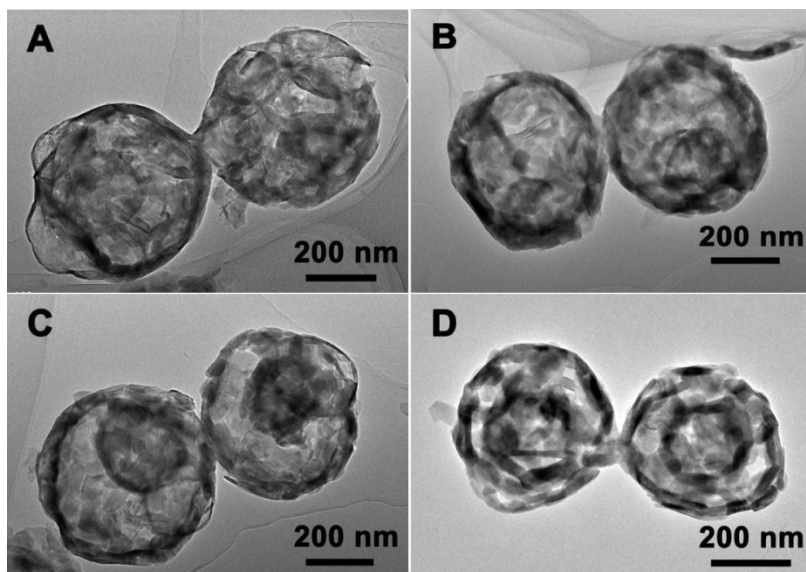


Fig. S4 TEM images of the V-gly precursor heating in air at 350 °C for 0 min (A), 5 min (B), 30 min (C), 60 min (D)

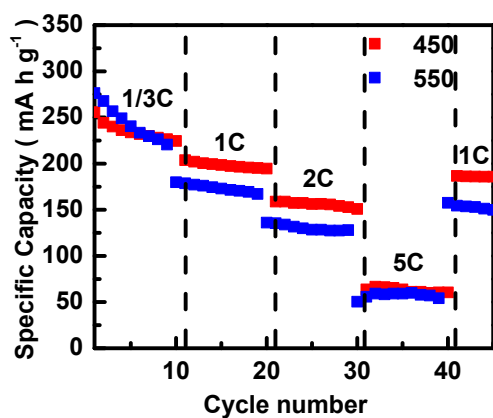


Fig. S5 The specific discharge capacities of sh-V@450 and s-V@550 at different rates from 1/3 C to 5 C.

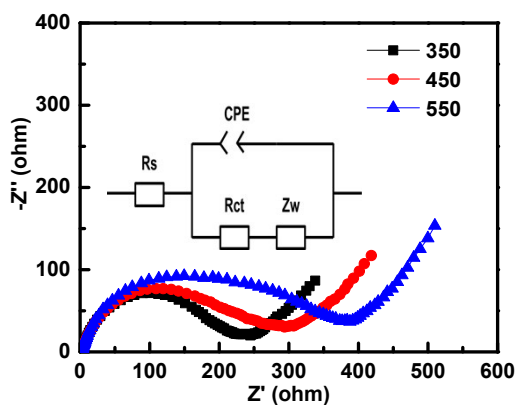


Fig. S6 Electrochemical impedance spectra of dh-V@350, sh-V@450 and s-V@550 after 5 charge-discharge cycles, respectively.

Reference:

- 1 D. Larcher, G. Sudant, R. Patrice, J. M. Tarascon, *Chem. Mater.*, 2003, **15**, 3543-3551.
- 2 J. Zhao, Y. Zou, X. Zou, T. Bai, Y. Liu, R. Gao, D. Wang and G. Li, *Nanoscale*, 2014, **6**, 7255-7262.
- 3 P. Ragupathy, S. Shivakumara, H. Vasan and N. Munichandraiah, *J. Phys. Chem. C*, 2008, **112**, 16700-16707.