

Carbon-reduction as easy route for the synthesis of VO₂ (M1) and further Al, Ti doping

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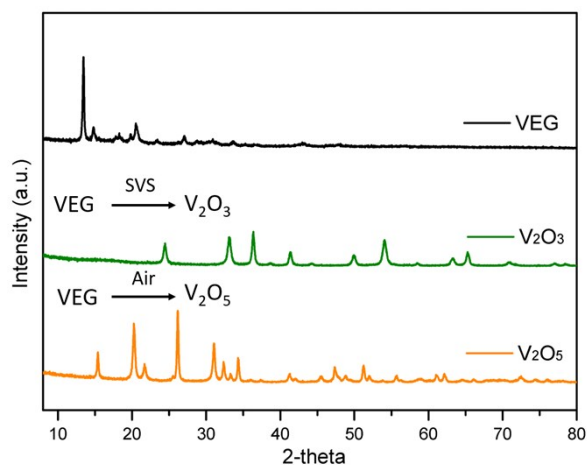


Figure. S1. XRD patterns of (i) vanadyl ethylene glycolate (VEG) synthesized through polyol route, (ii) V₂O₃ synthesized by heating VEG at 500°C for 5 h in the sealed vacuum system (SVS), (iii) V₂O₅ obtained by heating VEG at 300°C for 90 min in air.

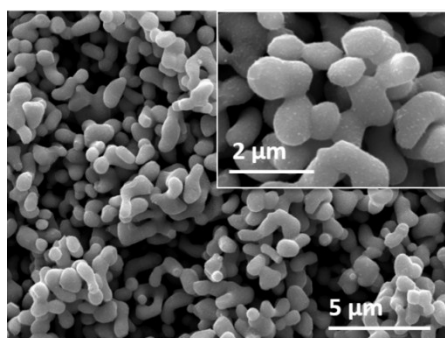


Figure. S2. SEM images of V₂O₃ powder synthesized from V₂O₅ reduction by carbon at 1000°C for 5 h using the sealed vacuum system.

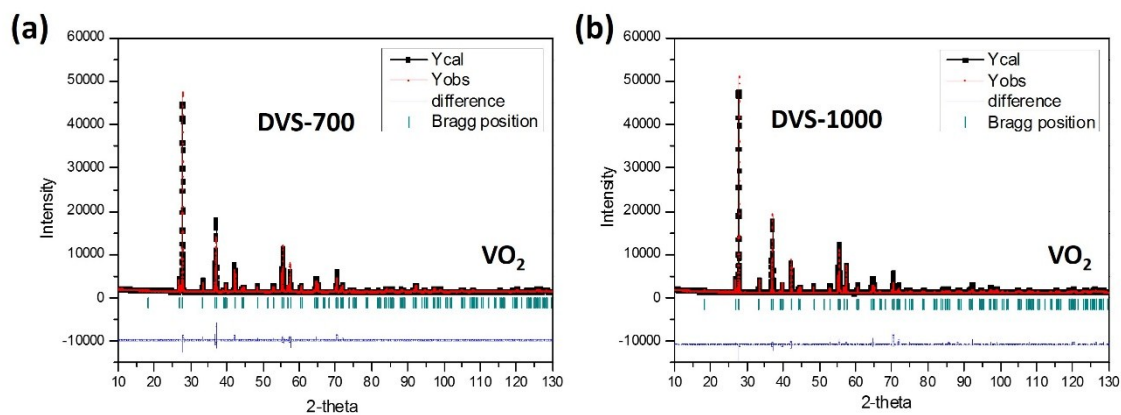


Figure. S3. Typical Rietveld refinements of XRD data for (a) DVS-700 sample; (b) DVS-1000 sample.

Table. S1. Lattice parameters and atomic positions of DVS-700 sample

Space group				
P 1 21/c 1 (14) Monoclinic				
Cell parameters	a	b	c	β
	5.7522(5) Å	4.5259(1) Å	5.3830(1) Å	122.6087(2) °
Atom	Wyck position	x	y	z
V1	4c	0.24048(0)	0.97887(0)	0.02785(0)
O1	4c	0.10187(0)	0.20892(0)	0.20228(0)
O2	4c	0.40210(0)	0.70627(0)	0.30251(0)
		$R_{\text{Bragg}} = 5.42$	$R_f = 4.66$	

Table. S2. Lattice parameters and atomic positions of DVS-1000 sample

Space group				
P 1 21/c 1 (14) Monoclinic				
Cell parameters	a	b	c	β
	5.7516(4) Å	4.5251(1) Å	5.3827(2) Å	122.6125(8) °
Atom	Wyck position	x	y	z
V1	4c	0.23839(0)	0.98171(0)	0.02633(0)
O1	4c	0.10311(0)	0.20925(0)	0.20715(0)
O2	4c	0.39813(0)	0.70770(0)	0.29400(0)
		$R_{\text{Bragg}} = 9.85$	$R_f = 7.04$	

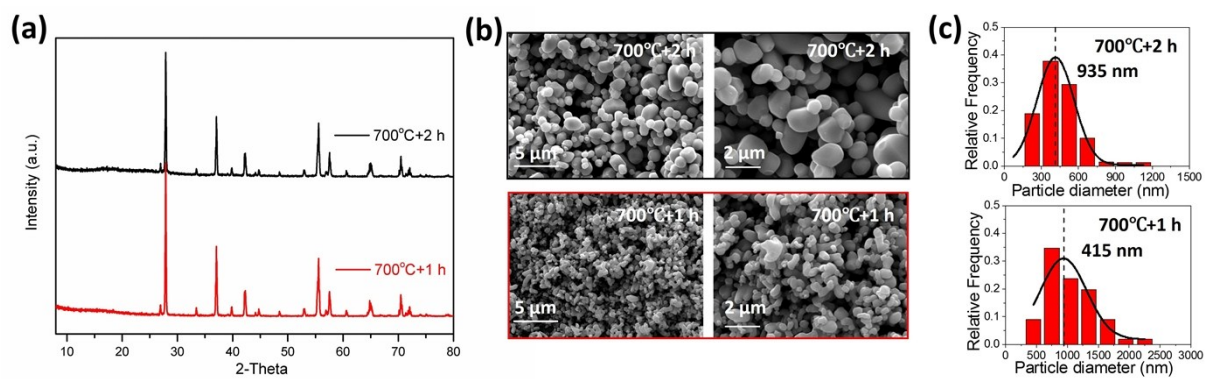


Figure. S4. (a) XRD patterns, (b) SEM images and (c) particle size distribution of the VO₂(M1) particles obtained by annealing at 700 °C in the dynamic vacuum system for 2 h and 1 h.