

Supplementary Information:

Electrochemical reduction of $\text{Ag}_2\text{VP}_2\text{O}_8$ composite electrodes visualized via *in situ* Energy Dispersive X-Ray Diffraction (EDXRD): unexpected conductive additive effects

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DOD, Rate	0	0.1, C/1440	0.5, C/1440	0.1, C/168	0.5, C/168	1.0, C/168
χ^2	0.000254	0.000155	0.000145	0.000356	0.00037	0.000404
R_s	2.15(1)	2.77(1)	1.90(1)	3.87(2)	2.24(2)	1.64(1)
$C_{dl1,T}$	0.000178(12)	0.000192(13)	0.000187(13)	0.000216(37)	0.000260(34)	0.000252(27)
$C_{dl1,P}$	0.752(7)	0.768(71)	0.770(8)	0.765(18)	0.762(15)	0.726(12)
R_m	4.21(5)	3.16(4)	2.51(5)	2.04(5)	2.05(8)	3.02(10)
$C_{dl2,T}$	0.0753(2)	0.0491(1)	0.0399(3)	0.0581(1)	0.0492(13)	0.0412(6)
$C_{dl2,P}$	0.840(4)	0.779(3)	0.472(17)	0.755(6)	0.462(47)	0.523(8)
R_{ct}	1705(155)	1213(46)	170(39)	566(24)	219(181)	34(2)
W_R	103(1)	61(1)	25(5)	53(1)	24(16)	9.5(6.5)
W_T	4.94(12)	3.37(9)	5.52(87)	3.81(17)	12.2(41)	4.43(455)
W_P	0.421(1)	0.416(1)	0.370(9)	0.400(1)	0.386(38)	0.337(3)

Table S1: Results of fit of AC impedance data to equivalent circuit model.

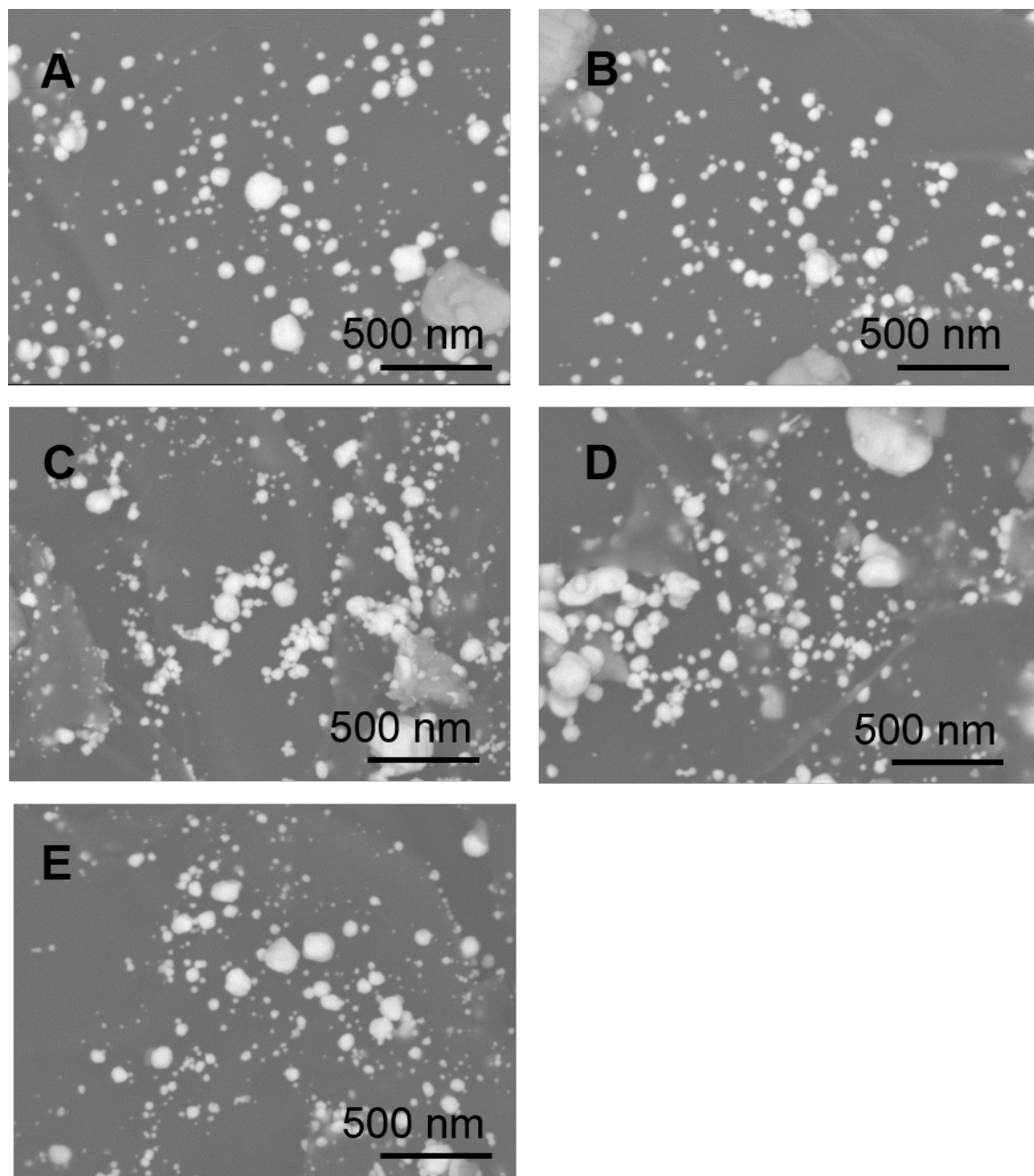


Figure S1. Backscattered electron (BSE) SEM images taken at 50,000X magnification of reground $\text{Ag}_2\text{VP}_2\text{O}_8$ -graphite pellets discharged to 0.1e (A,B), 0.5e (C,D), and 1e (E) using the discharge rate C/168 (A,C,E) or C/1440 (B,D).

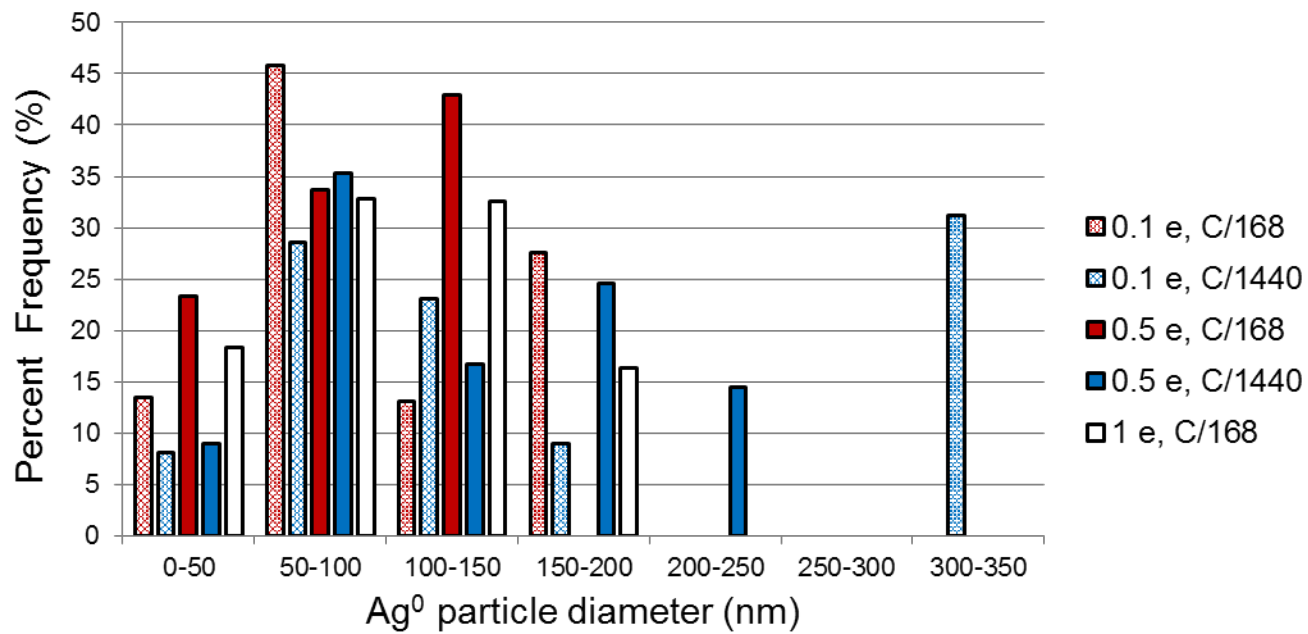


Figure S2. Volume weighted frequency distributions of Ag⁰ particles in reground Ag₂VP₂O₈ - graphite pellets.