Binder-free V2O5/CNT Paper Electrode for High Rate Performance Zinc Ion Battery

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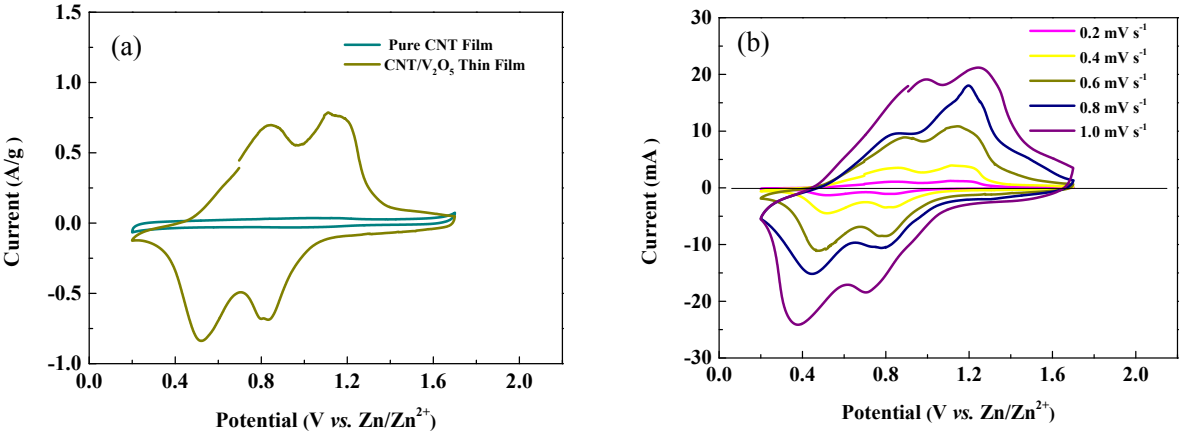

Figure S1. (a) Cyclic voltammetry curves of pure CNT film and V_2O_5/CNT paper at a scan rate of 0.2 mV s^{-1}; (b) Cyclic voltammetry curves of V_2O_5/CNT paper at various scan rates.

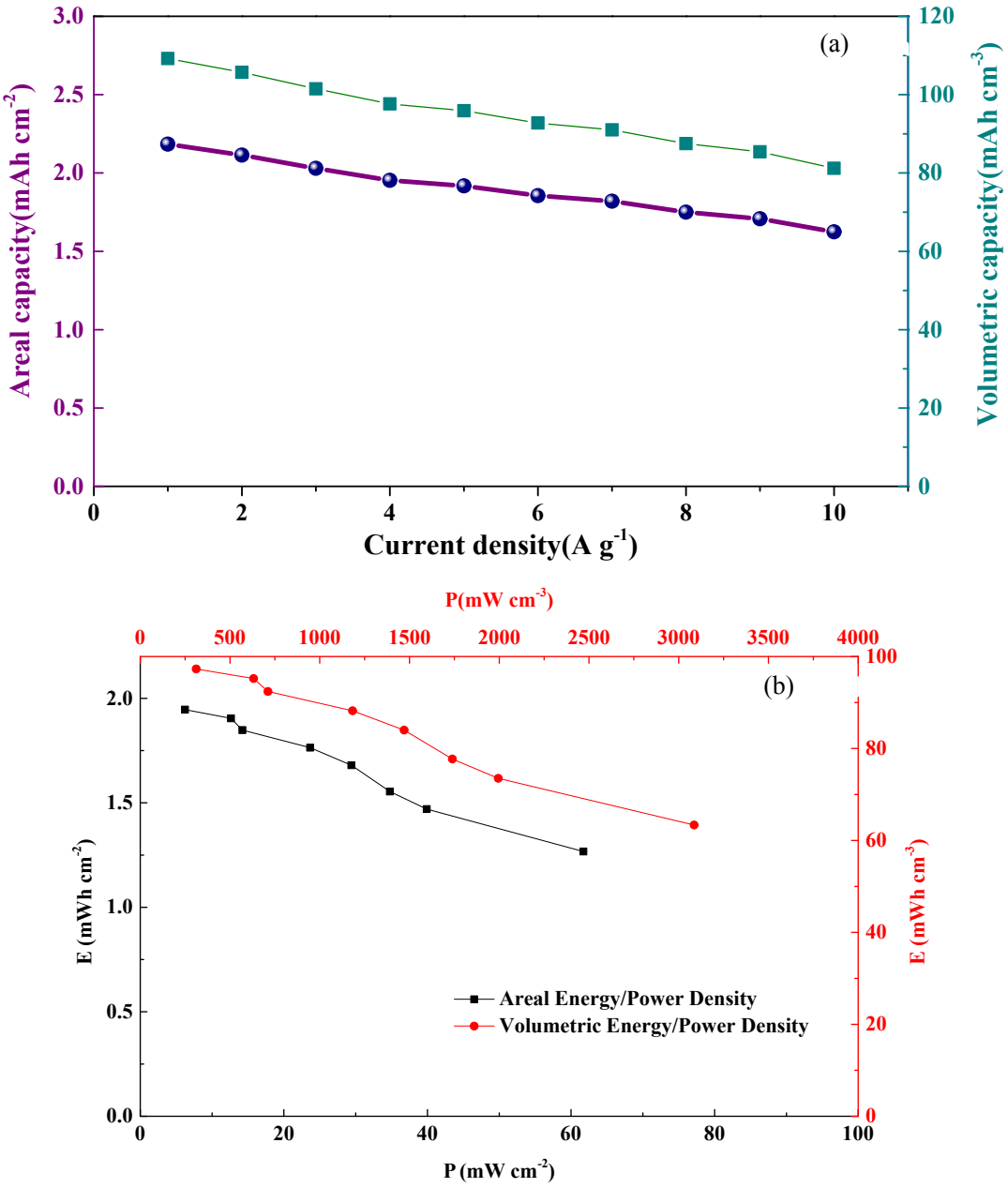

Figure S2. (a) The areal/volumetric capacities of V_2O_5/CNT paper; (b) The areal/volumetric energy/power densities of V_2O_5/CNT paper.

Device	Electrolyte	Energy density (Wh kg^{-1})	Power density (W kg^{-1})	Ref.
$Zn//V_2O_5$	Aqueous	218.8	154.9	22
$Zn//V_2O_5$@V-MOF	Aqueous	230	76.6	23
$Zn//V_2O_5 \cdot H_2O$	Aqueous	90	6.4k	24
$Zn//Zn_3V_2O_7(OH)_2 \cdot 2H_2O$	Aqueous	214	50.2	25
$Zn//V_2O_5$@PEDOT	Aqueous	243.3	90	26
$Zn//Na_2V_6O_{16} \cdot 3H_2O$	Aqueous	90	15.8k	27
$Zn//Na_3V_2(PO_4)_2F_3$	Aqueous	97.5	314.5	28
$Zn//(NH_4)_2V_{10}O_{25} \cdot 8H_2O$	Aqueous	225.4	98.9	29
$Zn//CNTs/V_2O_5$	Aqueous	278	891	This work

Table S1. The comparison Table of recent reports.

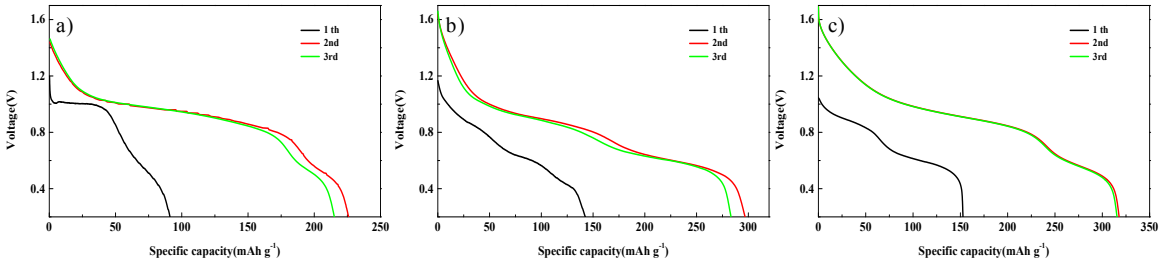

Figure S3. The discharge curves at current density of 1.0 A g^{-1}: (a) V_2O_5 powder, (b) CNT/V_2O_5 mixed powder and (c) V_2O_5/CNT paper.

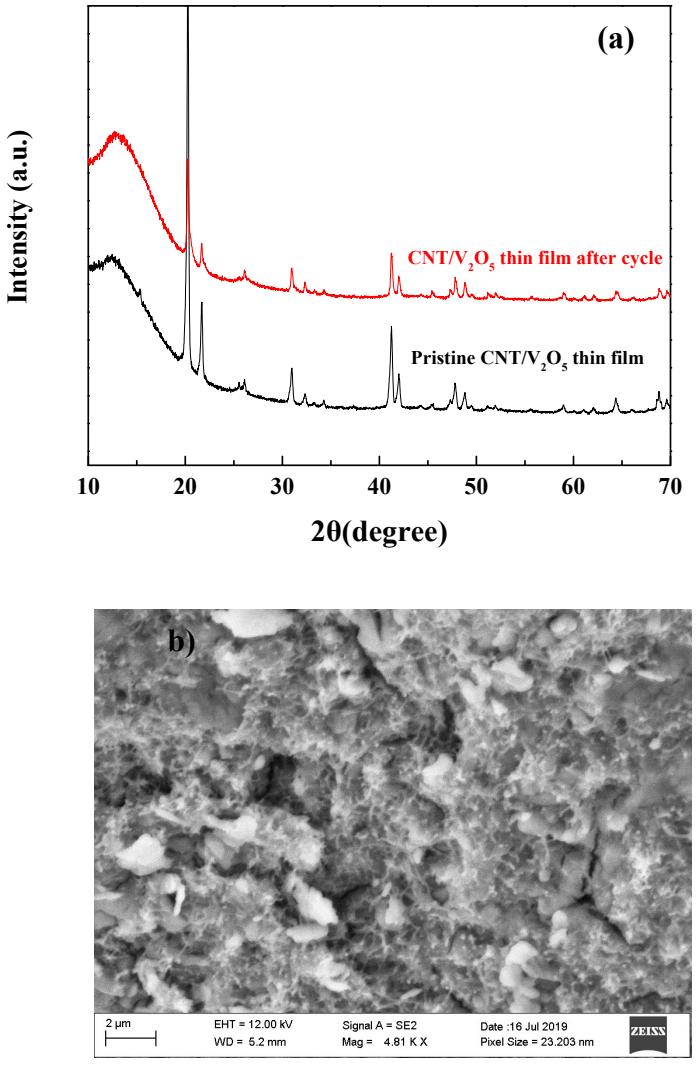

Figure S4. The XRD patterns of V_2O_5/CNT paper before and after cycle; (b) The SEM image of V_2O_5/CNT paper before and after cycle.

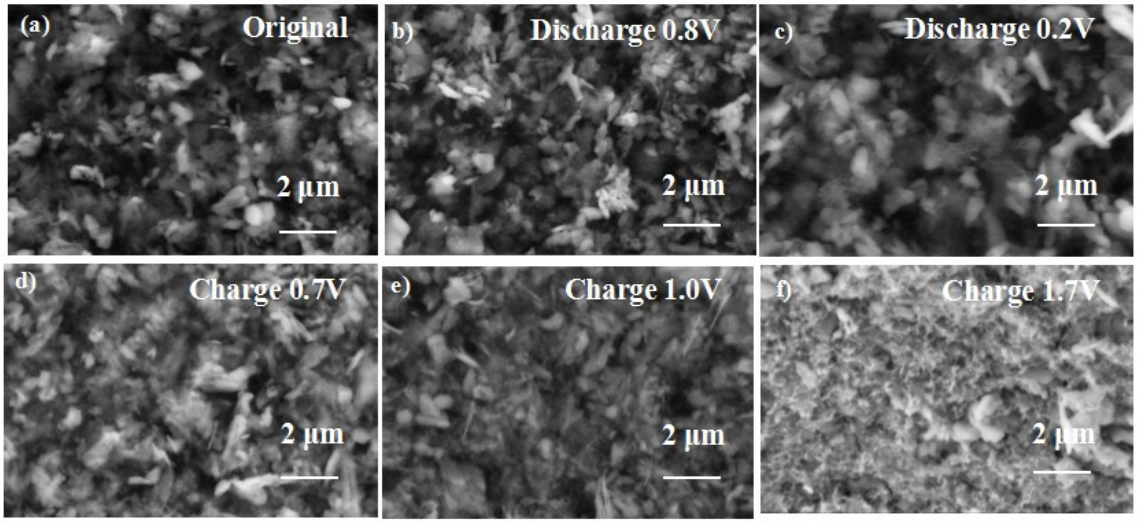

Figure S5. (a to f) The SEM images of V_2O_5/CNT paper under different potential.

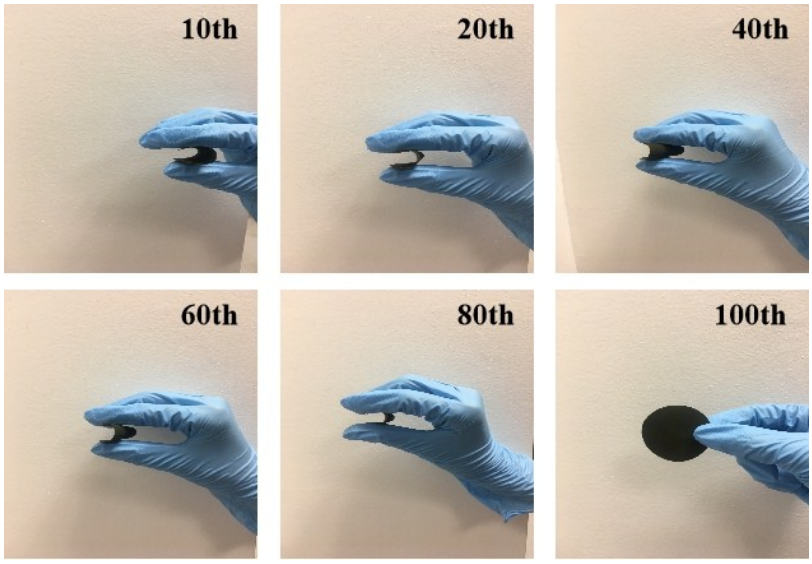

Figure S6. The mechanical stability of V_2O_5/CNT paper electrode.