Electronic Supplementary Material (ESI) for RSC Advances.

Acid-Treated Multi-Walled Carbon Nanotubes as Additives for Negative Active Materials to Improve High-Rate-Partial-State-of-Charge Cycle-life of Lead-Acid Battery

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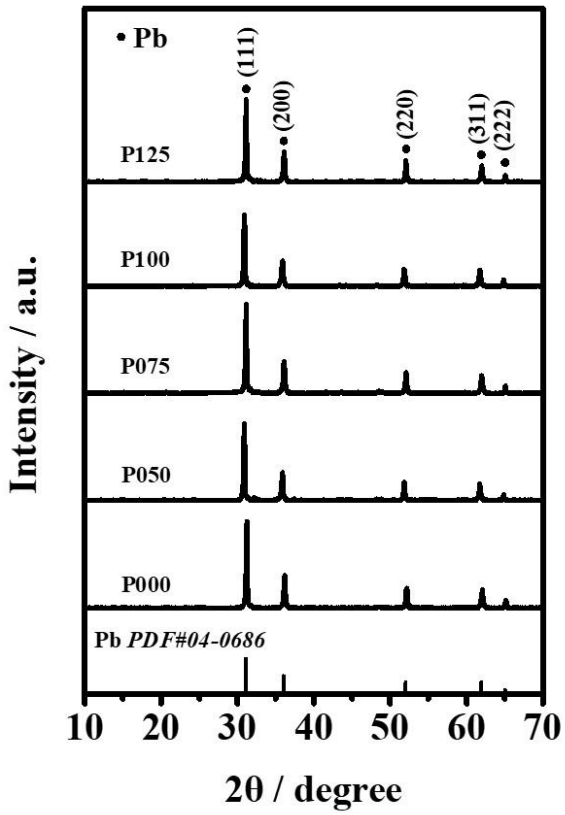

Figure S1. XRD patterns of the NAMs collected from the interior of the formed negative plates.

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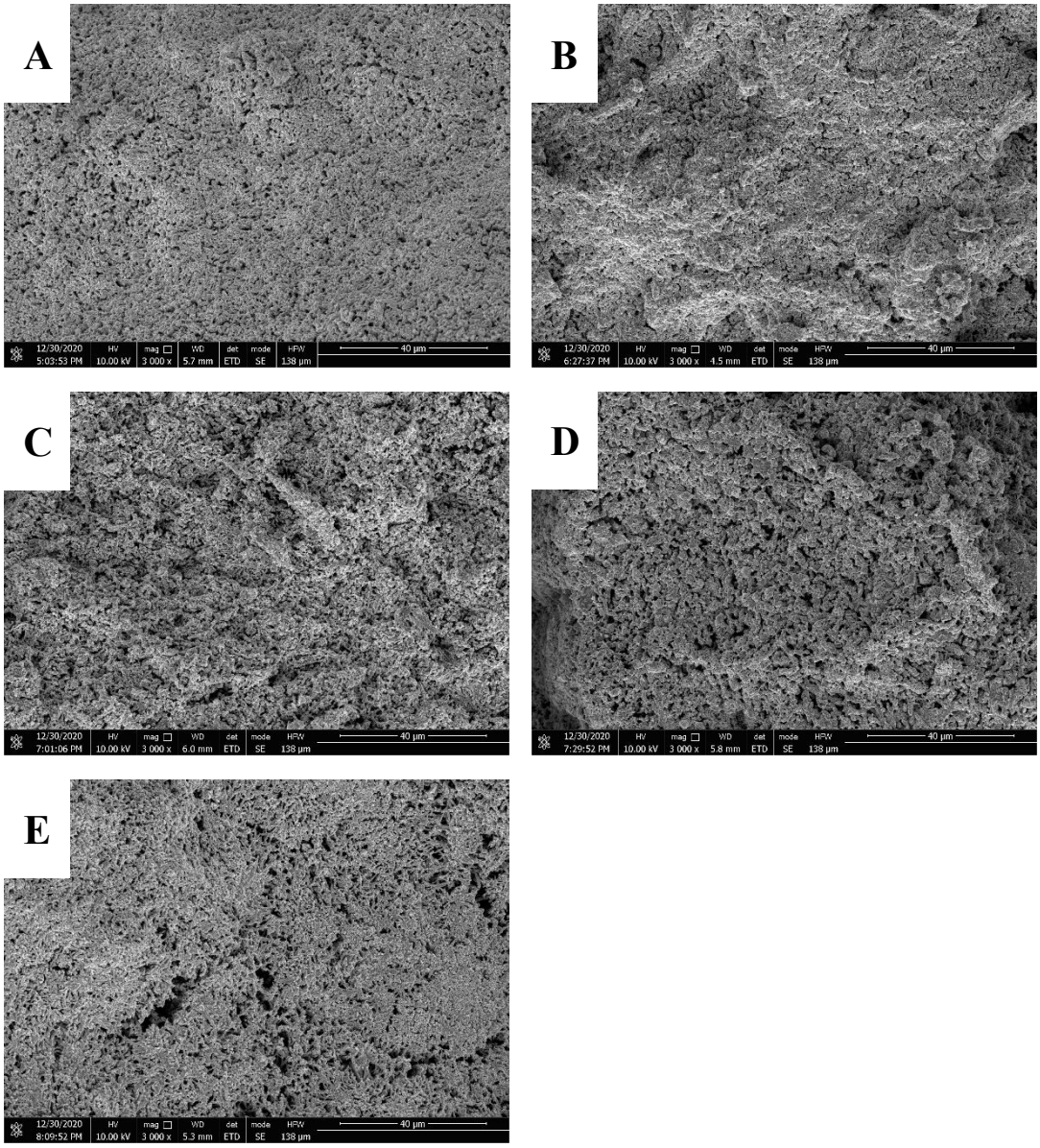

Figure S2. SEM images of the NAMs collected from the interior of the formed negative plates: P000 (A), P050 (B), P075 (C), P100 (D) and P125 (E). (Magnification: 3,000X)

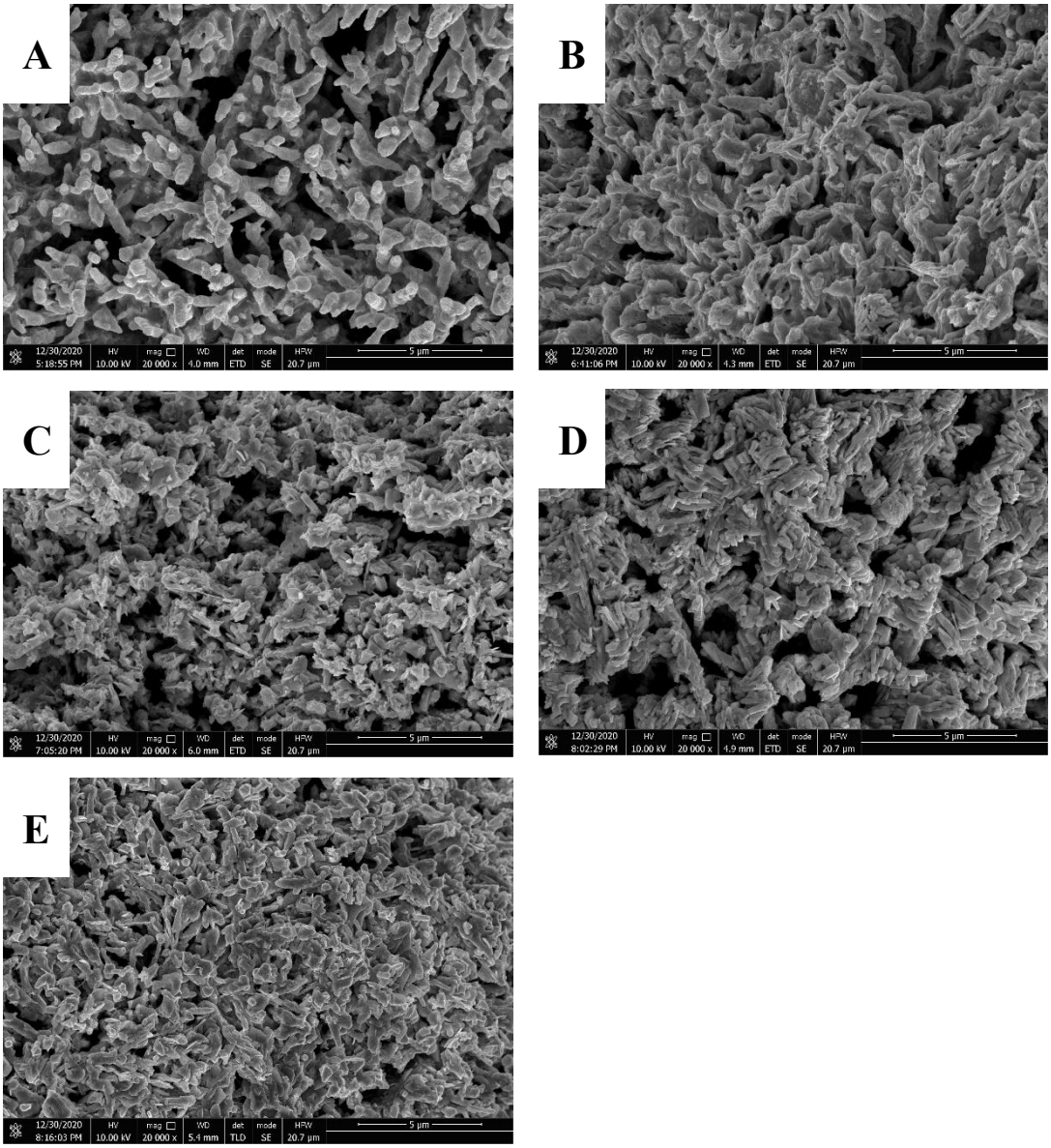

Figure S3. SEM images of the NAMs collected from the interior of the formed negative plates: P000 (A), P050 (B), P075 (C), P100 (D) and P125 (E). (Magnification: 20,000X)

Table S1. Peak potentials and peak currents obtained from the CV curves of different plates

Plates	Anodic peak Potential (V)	Anodic peak Current (A)	Cathodic peak Potential (V)	Cathodic peak Current (A)
P000	-0.88	2.41	-1.22	-1.91
P050	-0.84	2.32	-1.22	-1.91
P075	-0.87	2.67	-1.16	-1.92
P100	-0.84	3.05	-1.20	-2.54
P125	-0.83	2.80	-1.18	-2.34

Table S2. Charge resistance (R_{ct}) values obtained from the Nyquist plots

Plates	R_{ct} (Ω)
P000	0.082
P050	0.10
P075	0.094
P100	0.065
P125	0.099