

**Na<sub>3</sub>V<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub>-Decorated Na<sub>3</sub>V<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>F<sub>3</sub> as a High-Rate and Cycle-Stable Cathode  
Material for Sodium Ion Batterie**

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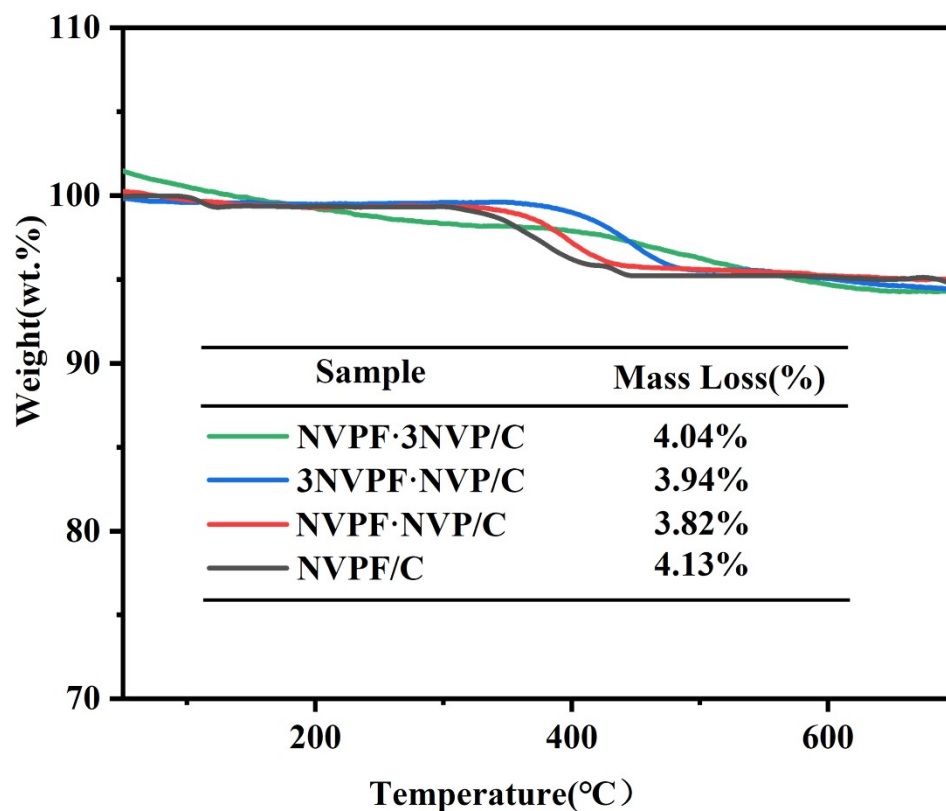
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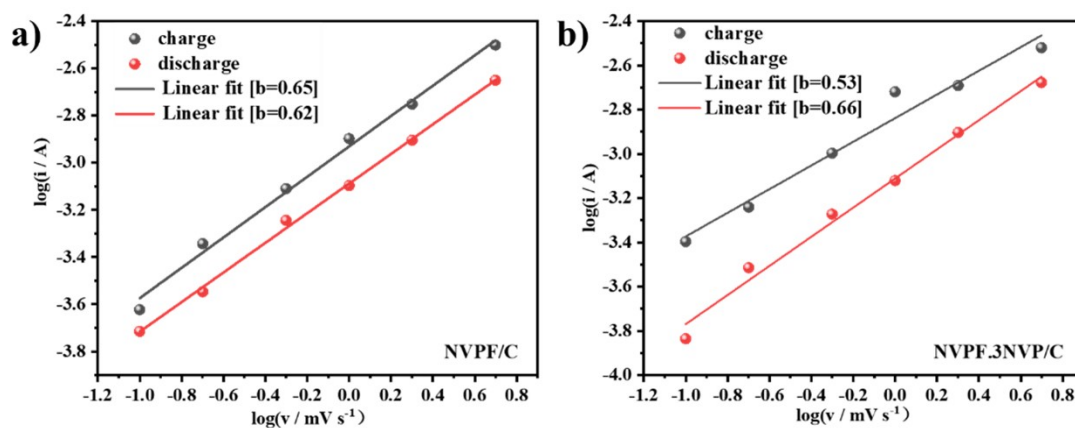
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**Table.S1** The collected cell parameters (a, b, c and V) of NVP/C, and NVPF/C, and corresponding content ratio of different phases in all composites.

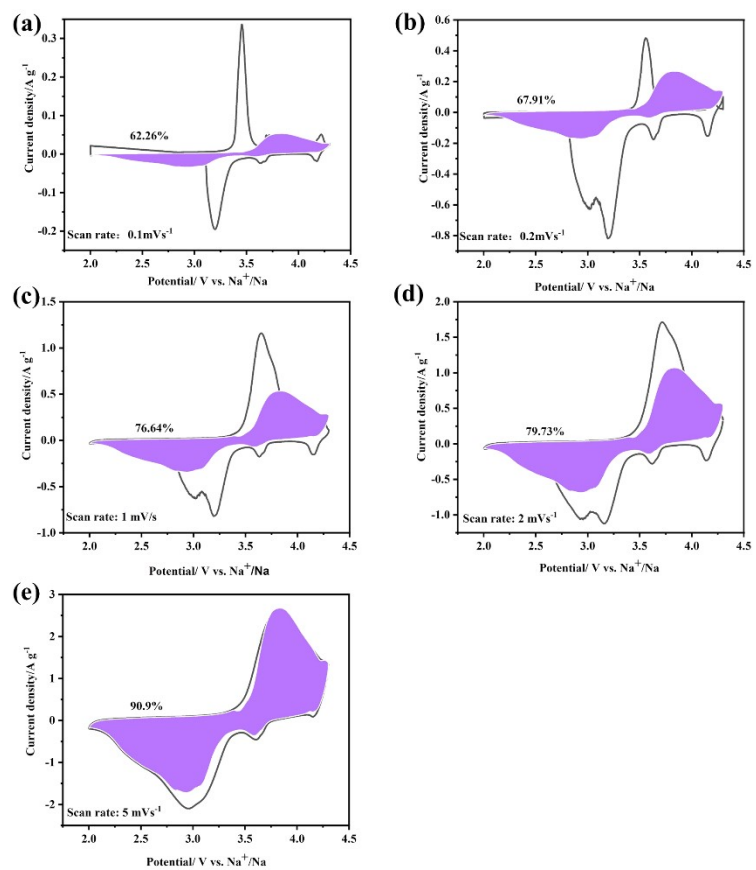
Sample	a(Å)	c(Å)	V(Å <sup>3</sup> )	Content ratio of NVP vs NVPF
NVPF/C	9.034	10.729	875.59	0:1
NVP/C	8.726	21.797	1437.37	1:0
NVPF.3NVP/C	-	-	-	78:22



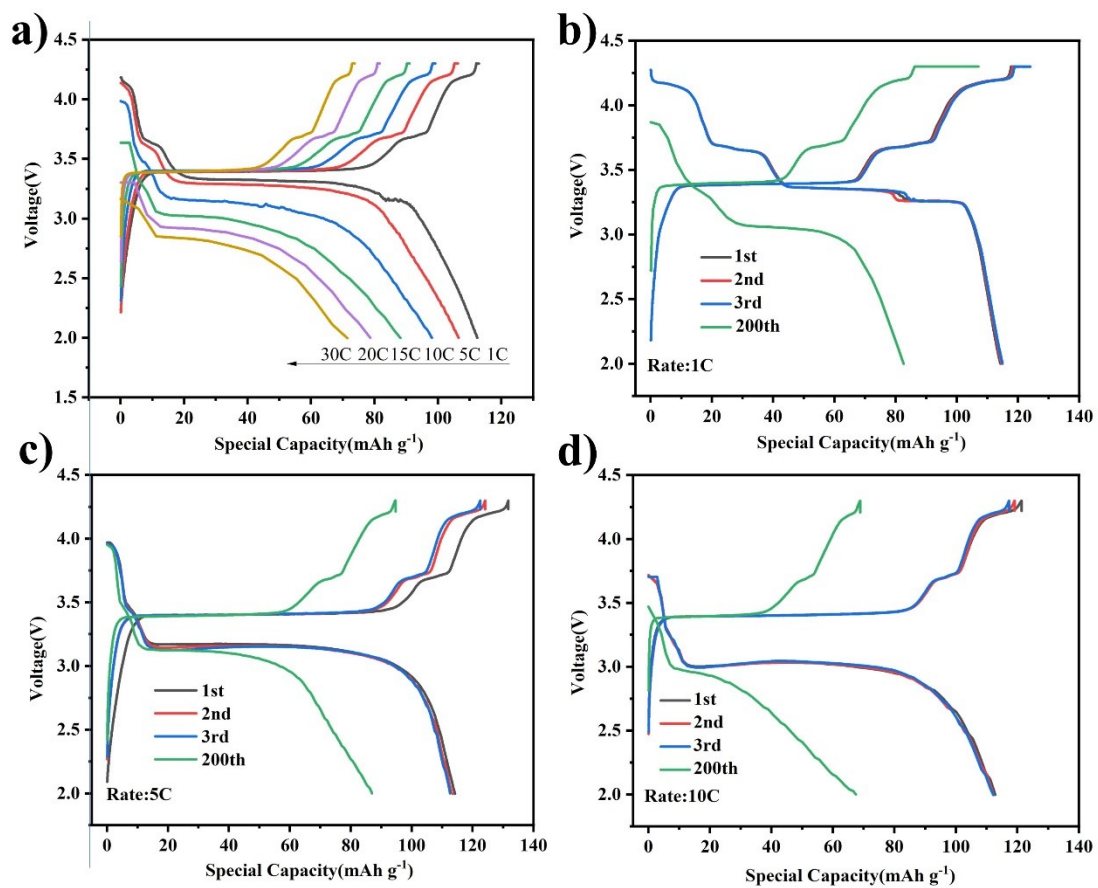
**Fig. S1** TGA curves obtained in a temperature range of 30 to 700°C at 5 °C/min under air of precursor of all samples.



**Fig. S2** Linear relationship between  $\log i$  and  $\log v$  in CV tests for NVPF/C (a) and NVPF.3NVP/C(b)



**Fig. S3** Curves of NVPF·3NVP/C for quantitative calculation as to capacitive contribution at various scan rates of 0.1 mV s<sup>-1</sup> (a), 0.2 mV s<sup>-1</sup> (b), 1 mV s<sup>-1</sup> (c), 2 mV s<sup>-1</sup> (d) and 5 mV s<sup>-1</sup> (e).



**Fig. S4** a) Charge-discharge curves of NVPF-3NVP/C at different rates. The galvanostatic charge discharge curves of NVPF-3NVP/C at 1 C b), 5 C c), and 10 C d) for the initial 3 cycles and at 200th cycle.