

Supporting Information

Sodium Extraction from NASICON-Structured $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ through Mn(III)/Mn(II) and Mn(IV)/Mn(III) Redox Couples

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Table S1. Atomic coordinates of $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ from the Rietveld refinement of the synchrotron XRD pattern ($R_p = 6.27\%$, $R_{wp} = 8.51\%$, and $R_{exp} = 0.84\%$).

Atom	Wyckoff site	x	y	z	B	Occupancy
Na(1)	6b	0.0000	0.0000	0.0000	0.1650(6)	0.8740(15)
Na(2)	18e	0.6399(8)	0.0000	0.2500	0.0580(10)	0.6620(12)
Mn(1)	12c	0.0000	0.0000	0.1484(6)	0.0090(5)	0.4990(13)
Ti(1)	12c	0.0000	0.0000	0.1484(6)	0.0090(5)	0.4990(13)
P(1)	18e	0.2983(4)	0.0000	0.2500	0.0100(8)	1.0000
O(1)	36f	0.1829(13)	0.1801(15)	0.0885(12)	0.0152(14)	1.0000
O(2)	36f	0.0310(17)	0.2139(14)	0.1980(11)	0.0232(12)	1.0000

Table S2. Lattice parameters of $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$, $\text{Na}_2\text{MnTi}(\text{PO}_4)_3$, and $\text{NaMnTi}(\text{PO}_4)_3$.

	Space group	a/ \AA	b/ \AA	c/ \AA
$\text{Na}_3\text{MnTi}(\text{PO}_4)_3$	$R-3c$	8.8253(9)	8.8253(9)	21.7078(11)
$\text{Na}_2\text{MnTi}(\text{PO}_4)_3$	$R-3c$	8.7170(12)	8.7170(12)	21.8434(14)
$\text{NaMnTi}(\text{PO}_4)_3$	$R-3c$	8.5645(11)	8.5645(11)	21.8896(15)

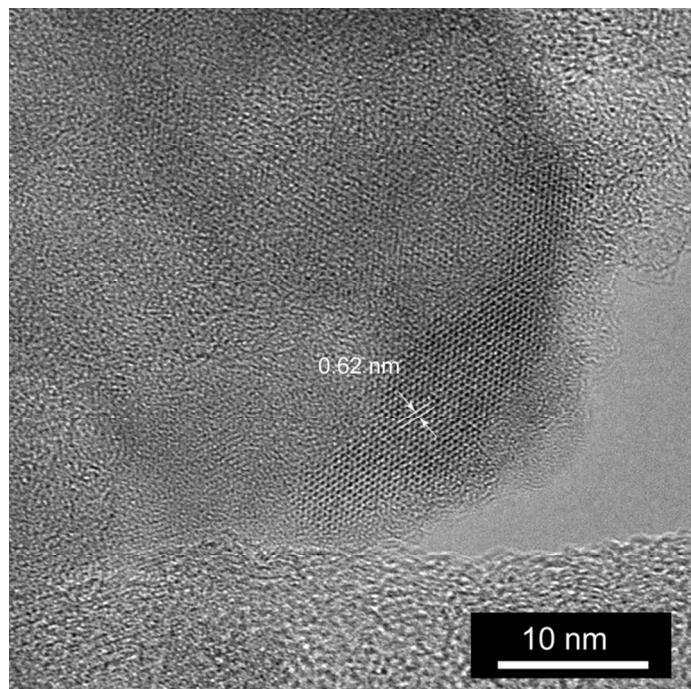


Figure S1. TEM images of the $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ sample.

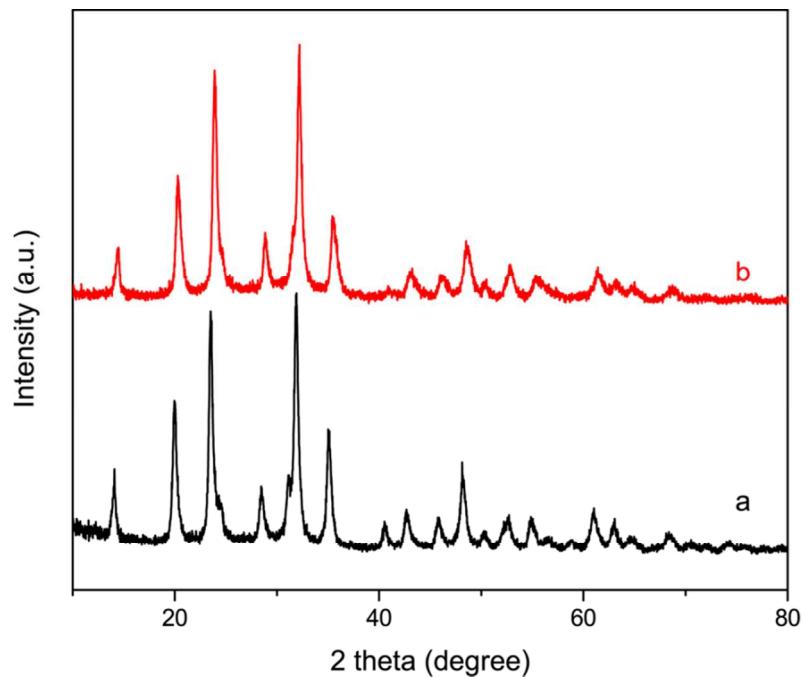


Figure S2. XRD patterns of $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ synthesized at different temperatures: (a) 600 °C and (b) 800 °C.

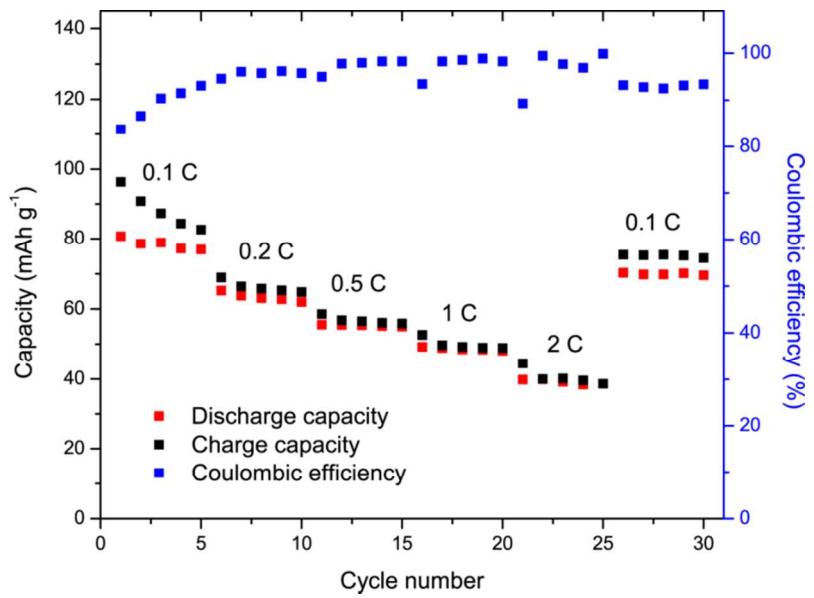


Figure S3. Rate performance of the $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ electrode at different charge/discharge rates from 0.1 C to 2 C.

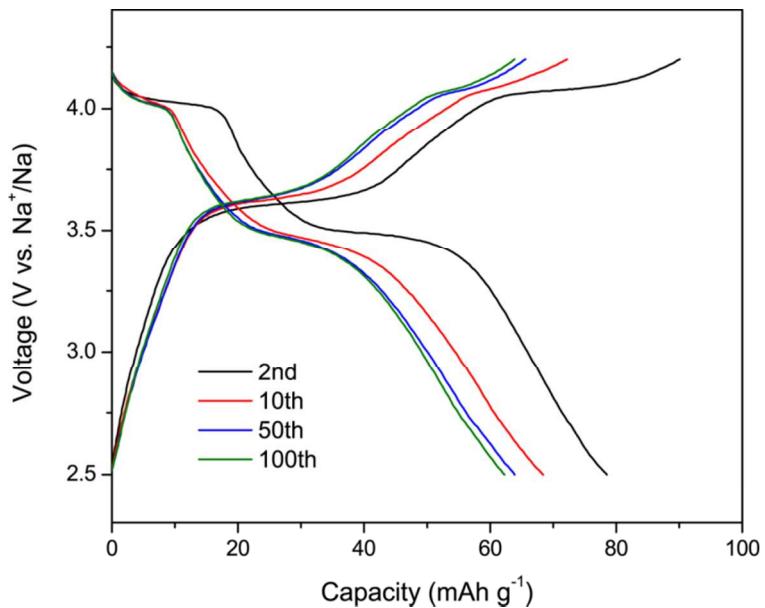


Figure S4. Galvanostatic charge/discharge curve of the $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ electrode at different cycles at a rate of 0.1 C.

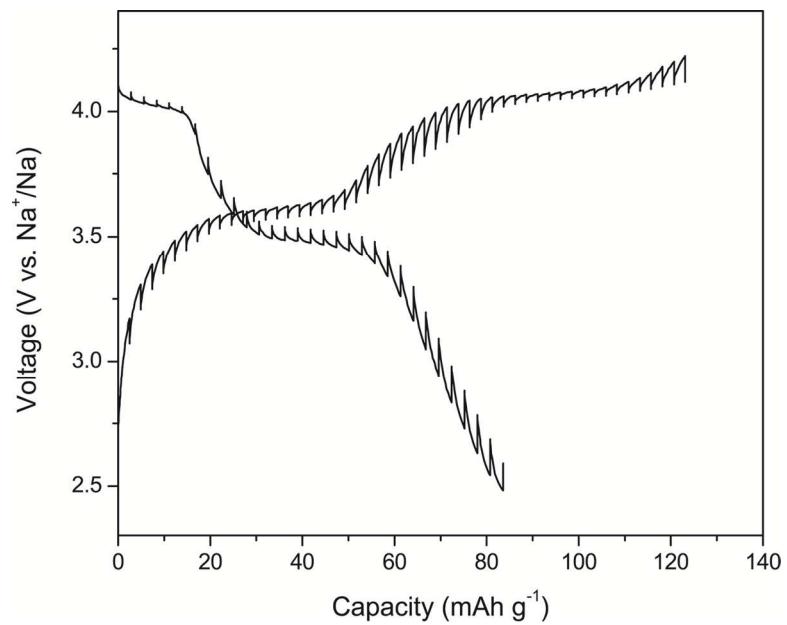


Figure S5. GITT curve of the $\text{Na}_3\text{MnTi}(\text{PO}_4)_3$ electrode.

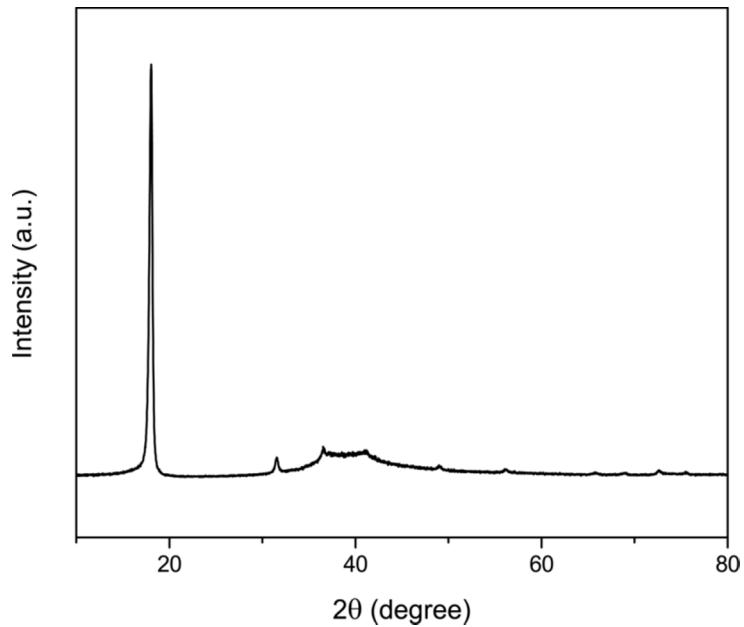


Figure S6. X-ray diffraction pattern of the polymer binder PTFE used to prepare the electrode.