Supporting Information

Sacrificial separator facilitating in-situ creation of durable CEI layer and tailoring lithium dendrite for practical lithium metal batteries

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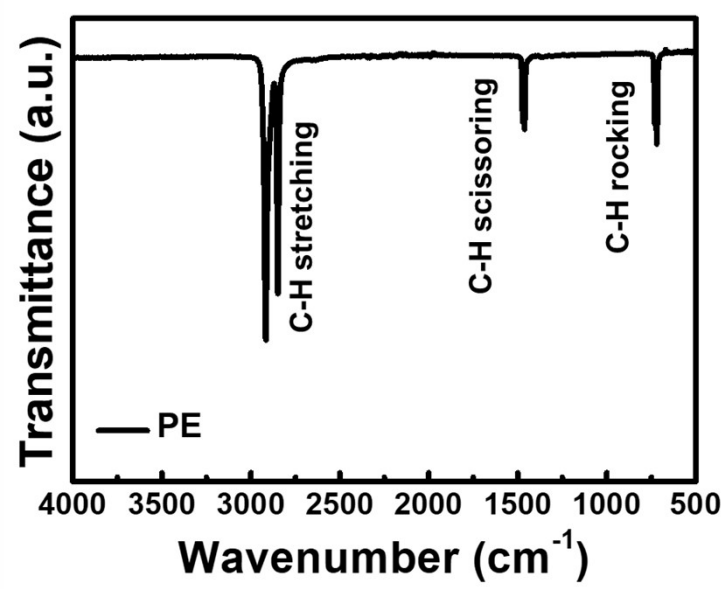
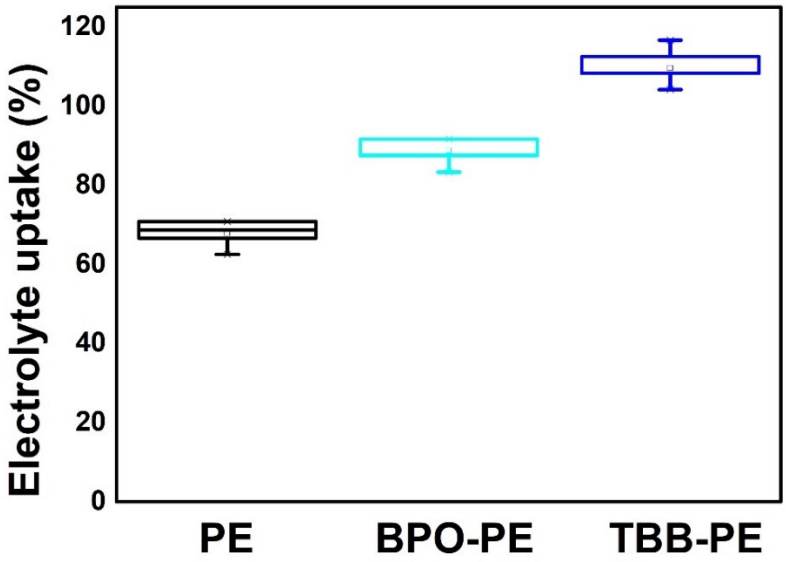


Fig. S1. FT-IR spectra of the PE separator



Sample	Before	After	Electrolyte uptake(%)
PE	2.4 mg	4.1 mg	70.8
BPO-PE	2.4 mg	4.6 mg	91.6
TBB-PE	2.4 mg	5.0 mg	108.3

Fig. S2. Electrolyte uptake results of PE, BPO-PE, and TBB-PE separator

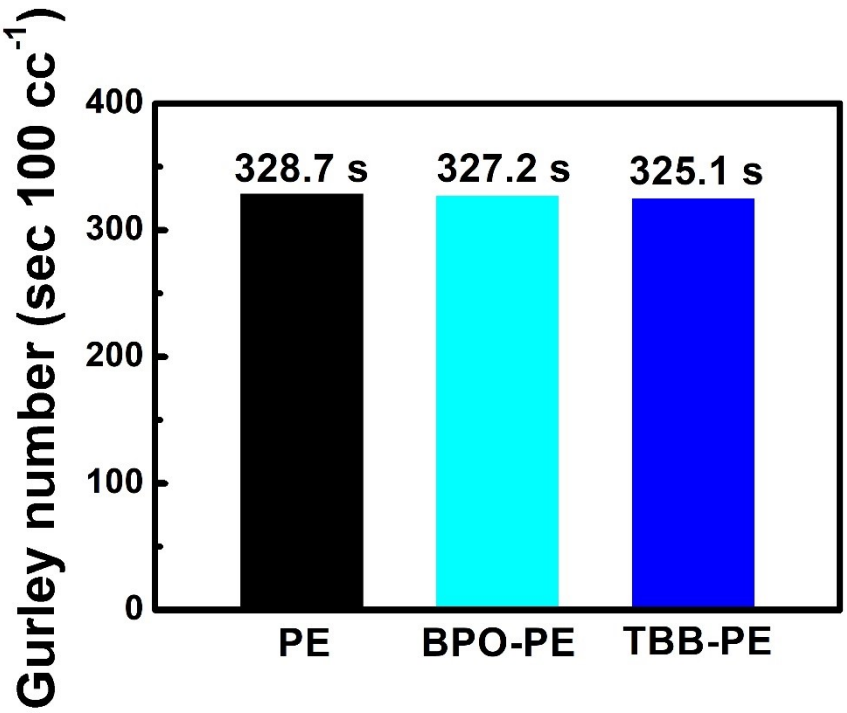


Fig. S3. Gurley number of PE, BPO-PE, TBB-PE separator

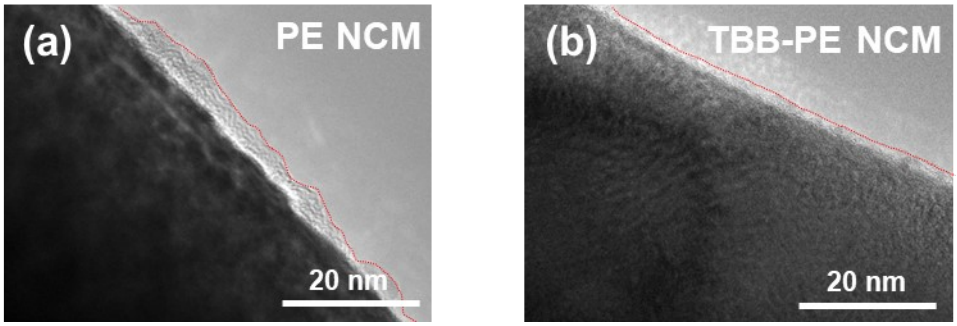


Fig. S4. TEM images of NCM particles after formation cycles with (a) PE and (b) TBB-PE separator

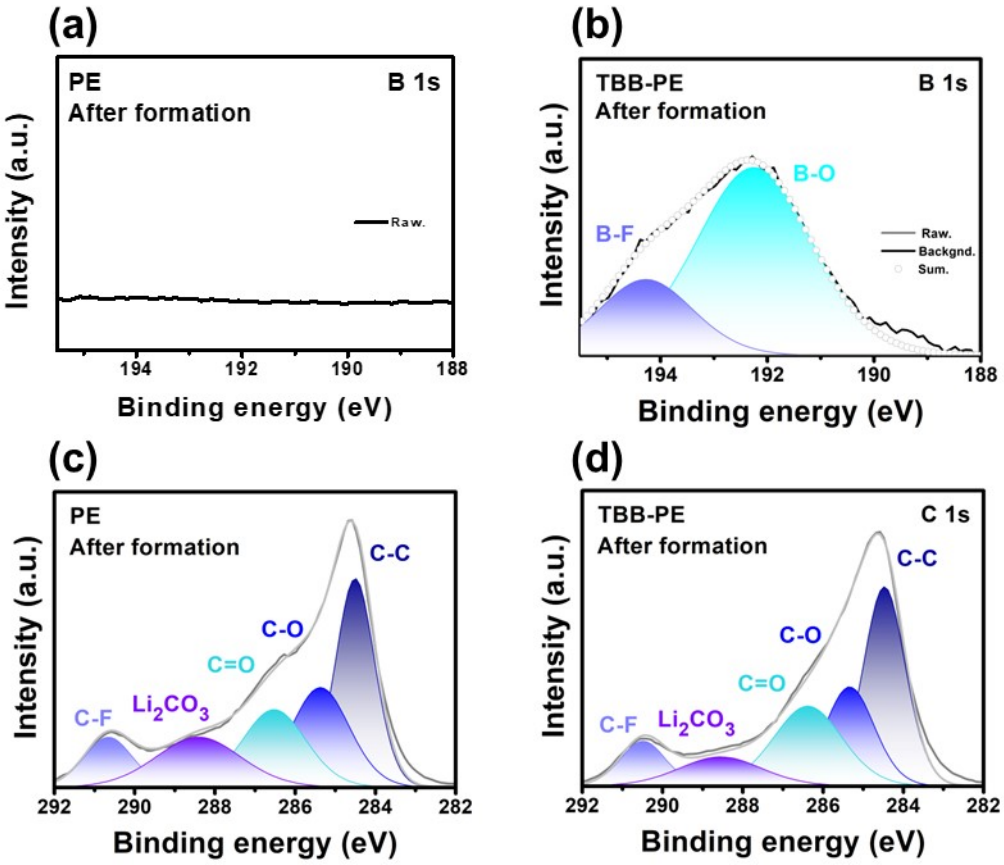


Fig. S5. XPS B 1s and C 1s spectra of NCM particles after formation cycles with (a, c) PE and (b, d) TBB-PE separator

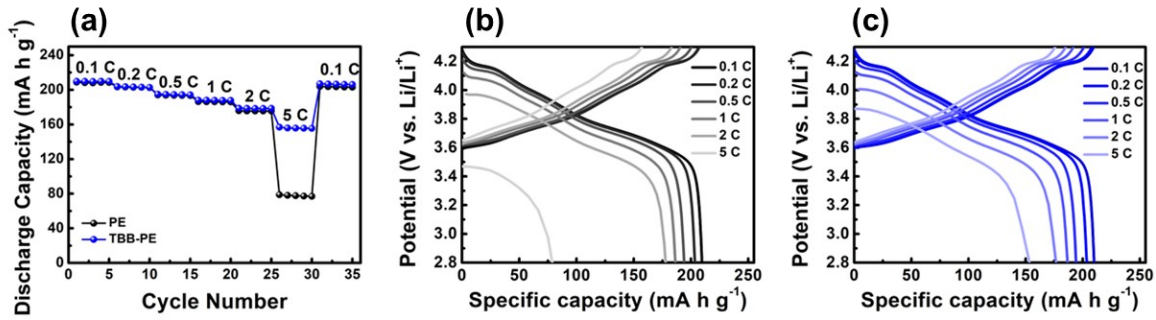


Fig. S6. (a) Rate performance of PE and TBB-PE separator. Charge/discharge voltage profiles of rate performance with (b) PE and (c) TBB-PE separator.

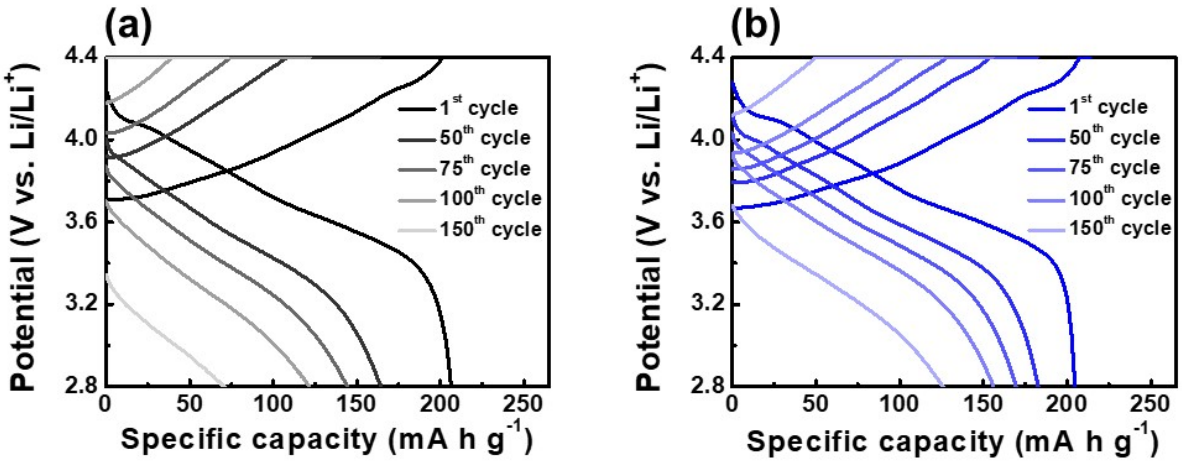


Fig. S7. Charge/discharge voltage profiles at elevated temperature and high cut-off voltage cycled with (a) PE and (b) TBB-PE separator.

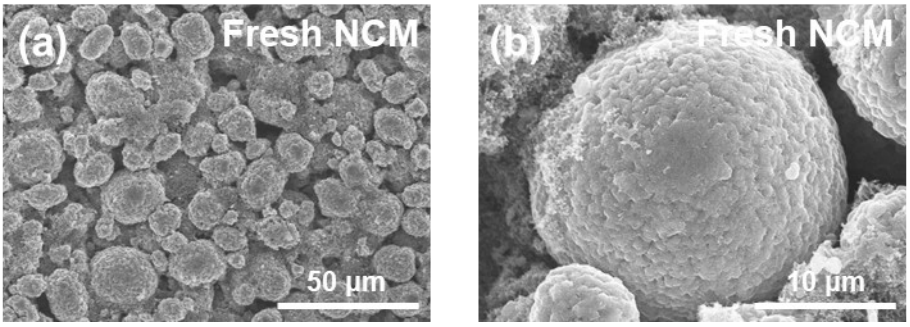


Fig. S8. (a-b) SEM images of NCM particles before cycling