

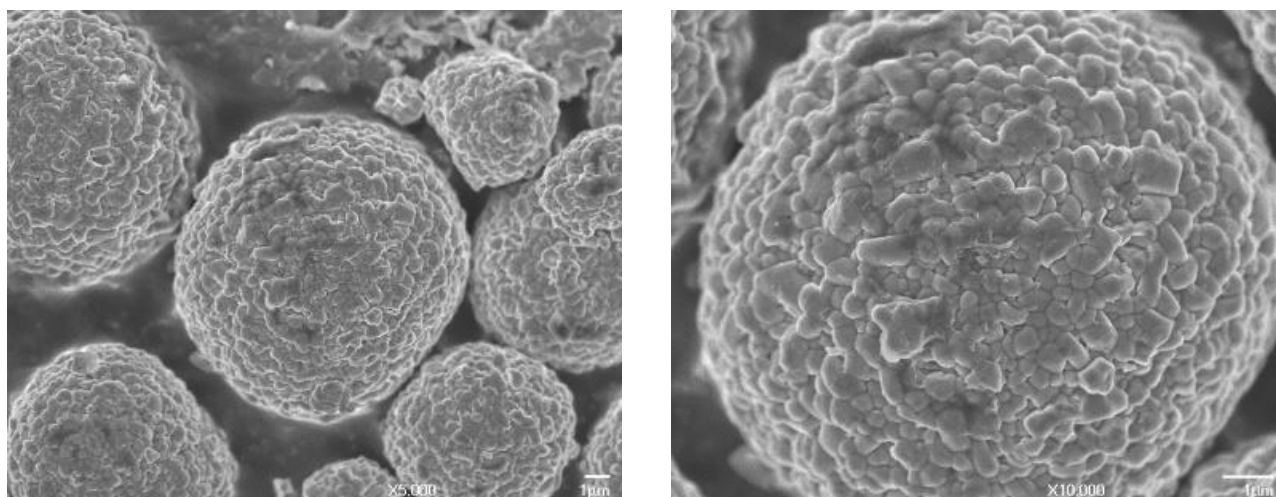


## Supplementary Materials

# Solvent-Free Fabrication of Thick Electrodes in Thermoplastic Binders for High Energy Density Lithium-Ion Batteries

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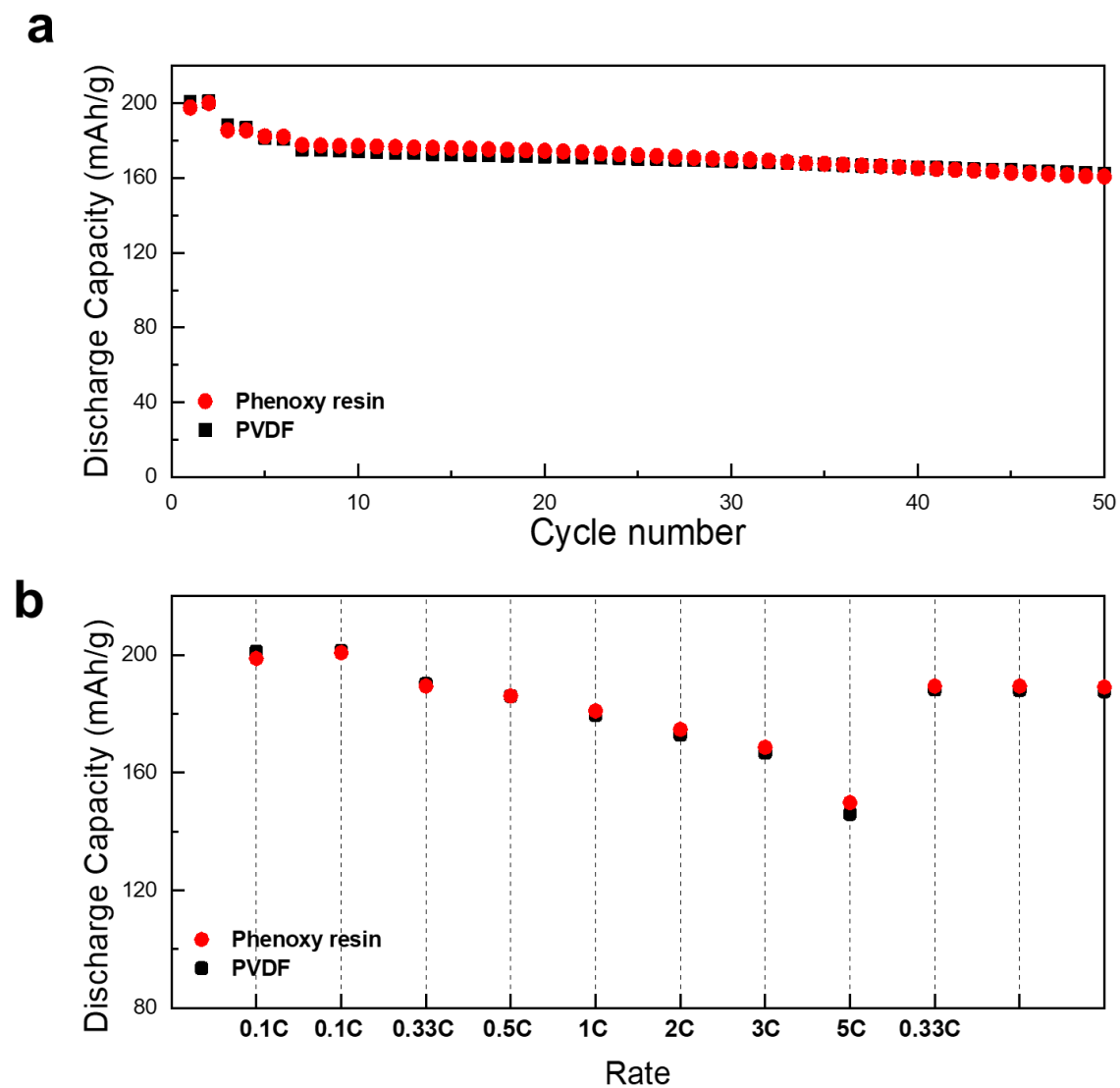
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**Figure S1.** SEM image of NCM811 surface. Scale bar: 1  $\mu\text{m}$ .**Table S1.** NCM811 particle analysis information.

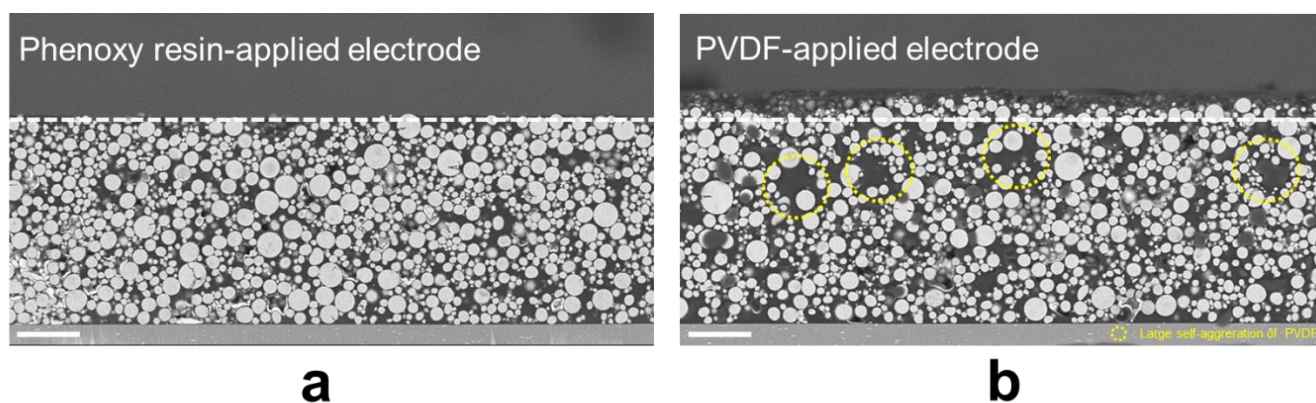
NCM 811	Particle-size Distribution ( $\mu\text{m}$ )			Specific Surface Area ( $\text{m}^2/\text{g}$ )	Excess Lithium (%)		
	Dmin	D50	Dmax		LiOH	Li <sub>2</sub> CO <sub>3</sub>	Total
	0.7	11.3	28.9	0.46	0.269	0.140	0.555

**Table S2.** Electrode thickness change before/after wetting the electrolyte.

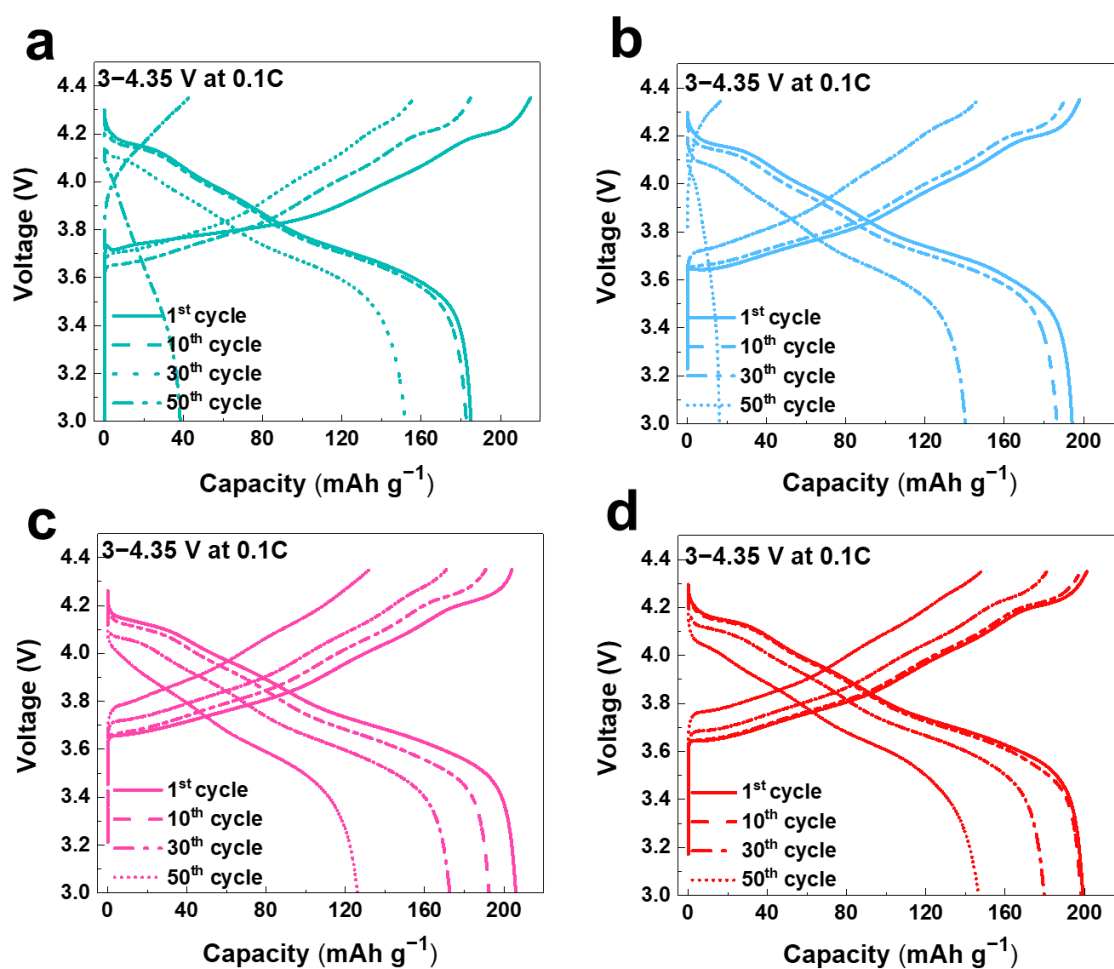
		Wet PVDF	Dry PVDF	Wet Phenoxy Resin	Dry Phenoxy Resin
Thickness ( $\mu\text{m}$ )	Before wetting	150.48	152.47	149.75	150.63
	After wetting	164.02	167.72	155.74	155.15
Thickness Change (%)		108	110	104	103



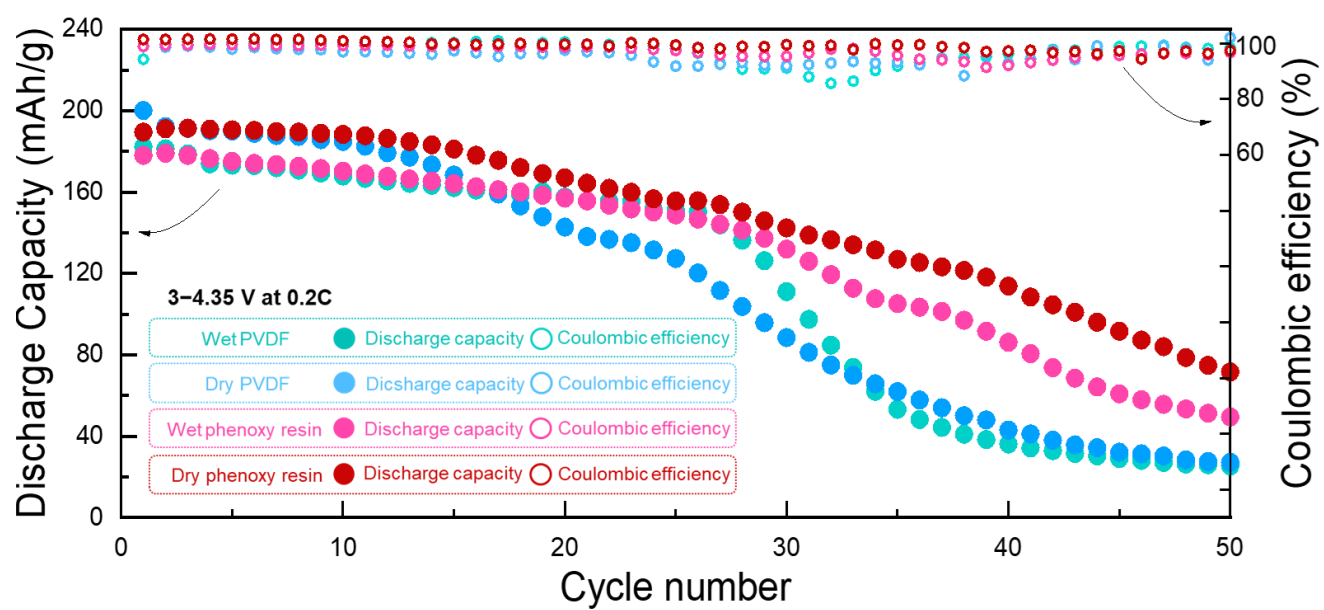
**Figure S2.** Characterizations of electrochemical properties of Loading  $\sim 10 \text{ mg/cm}^2$ : Cycle performances of Phenoxy resin and PVDF at 1C. (a) Rate performances of Phenoxy resin and PVDF at various current density of Phenoxy resin and PVDF. (b).



**Figure S3.** Cross-sectional SEM image of electrode surface using (a) Phenoxo resin (b) PVDF. Scale bar = 50  $\mu\text{m}$ .



**Figure S4.** Charge/discharge curves at 1<sup>st</sup>, 10<sup>th</sup>, 30<sup>th</sup> and 50<sup>th</sup> cycles of (a) Wet PVDF (b) Dry PVDF (c) Wet Phenoxo resin (d) Dry Phenoxo resin.



**Figure S5.** Cycle performances of Wet PVDF, Dry PVDF, Wet Phenoxo resin, Dry Phenoxo resin at 0.2C.