

1, doublet, -83.32 ppm, J =967.6 Hz, $\text{OPF}_2(\text{OH})$

2, doublet, -84.61 ppm, J= 1004,4 Hz, $\text{OPF}_2(\text{OCH}_2\text{CH}_2\text{OMe})$

3, doublet, -86.53 ppm, J=1006.5 Hz, $\text{OPF}_2(\text{OMe})$

Figure S1. ^{19}F NMR and the multiplet assignment of each compound in the aged Gen2 in a glass vial

	Normalized Peak Width of $-\text{CH}_3$ from ^1H NMR	Normalized Peak Width of PF_6^- from ^{19}F NMR
NMC532 (Glass)	0.004257208	0.006699033
LNMO (PE)	0.010027486	0.069683416
LNMO (Glass)	0.044072647	0.092793752
LNMO-1 (Glass)	0.063905945	0.13204971
LNMO-2 (Glass)	0.037376935	0.073357902

Figure S2. Full width at half maximum measurements from ^1H NMR and ^{19}F NMR spectra of the laminates soaking test. Normalized Width = $\sum (\text{Peak Width} / \text{Peak Area}^{0.5})$.

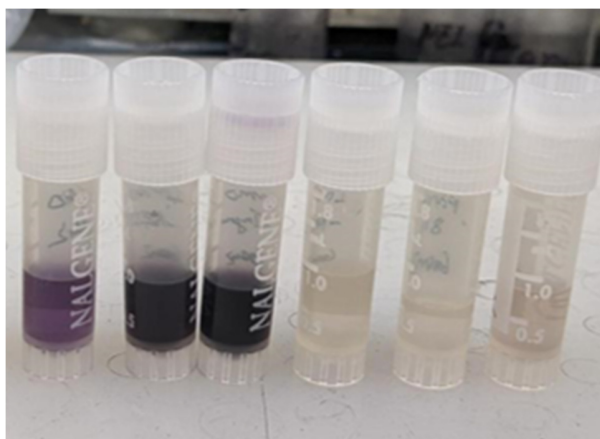


Figure S3. Gen2 electrolytes collected after electrode powder soaking test (samples from left to right are LMO, LNMO from NEI Corporation, LNMO from Targray, LMR-NMC, NMC811 and NMC442, respectively).

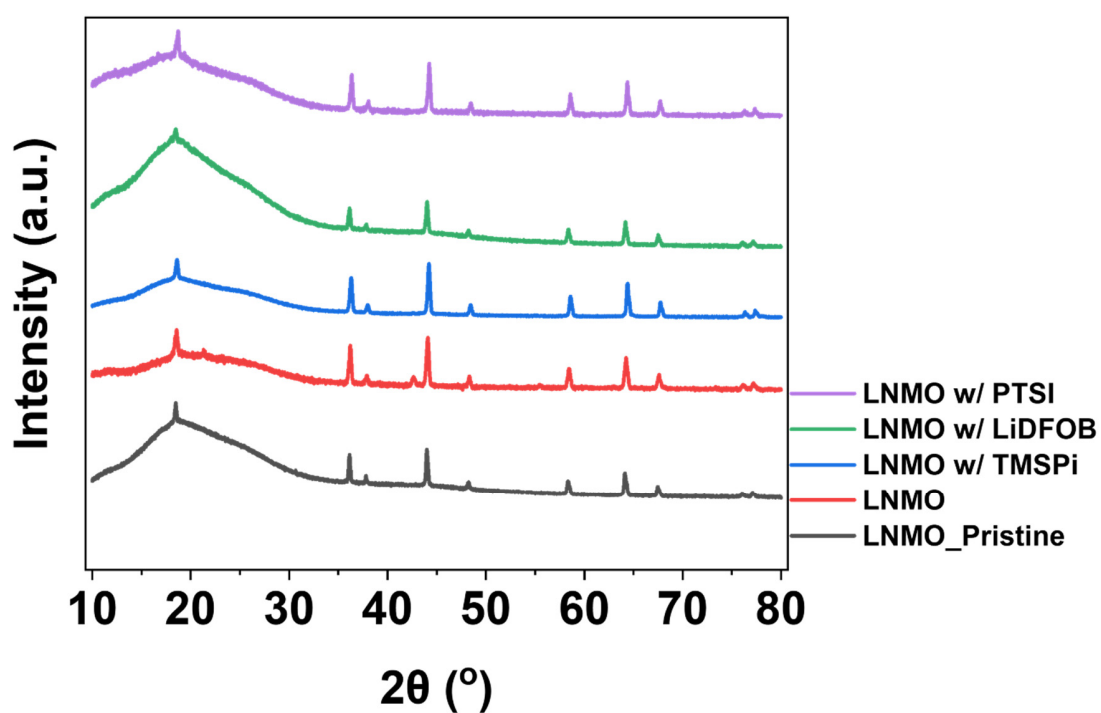


Figure S4. XRD patterns of the pristine LNMO (black) and the LNMOs collected after soaking in glass with Gen2 (red), Gne2 with TMSPi (blue), Gen2 with LiDFOB (green), and Gen2 with PTSI (purple).