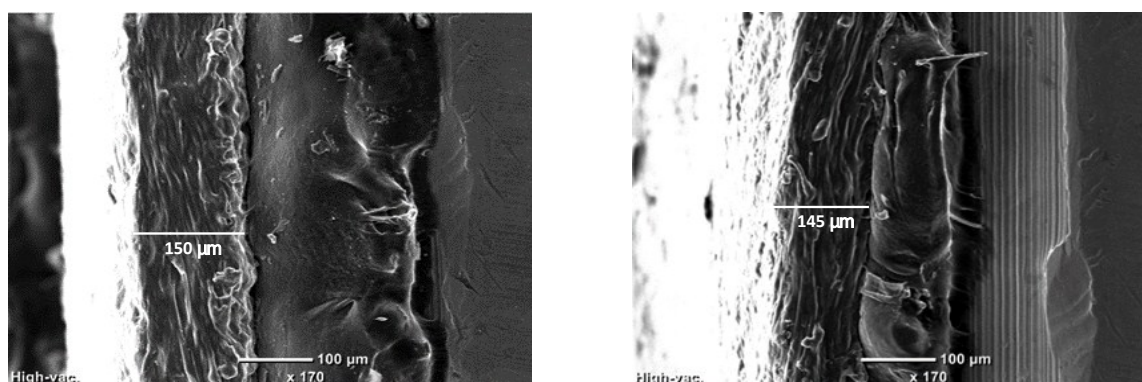


Supporting Information

All-Solid-State Li-metal Batteries: Role of Blending PTFE in PEO with LiTFSI Salt as Composite Electrolyte with Enhanced Thermal Stability

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PEO₁₀₀

PTFE₁₀PEO₉₀

Figure S1: Cross-sectional images of the electrolyte films.

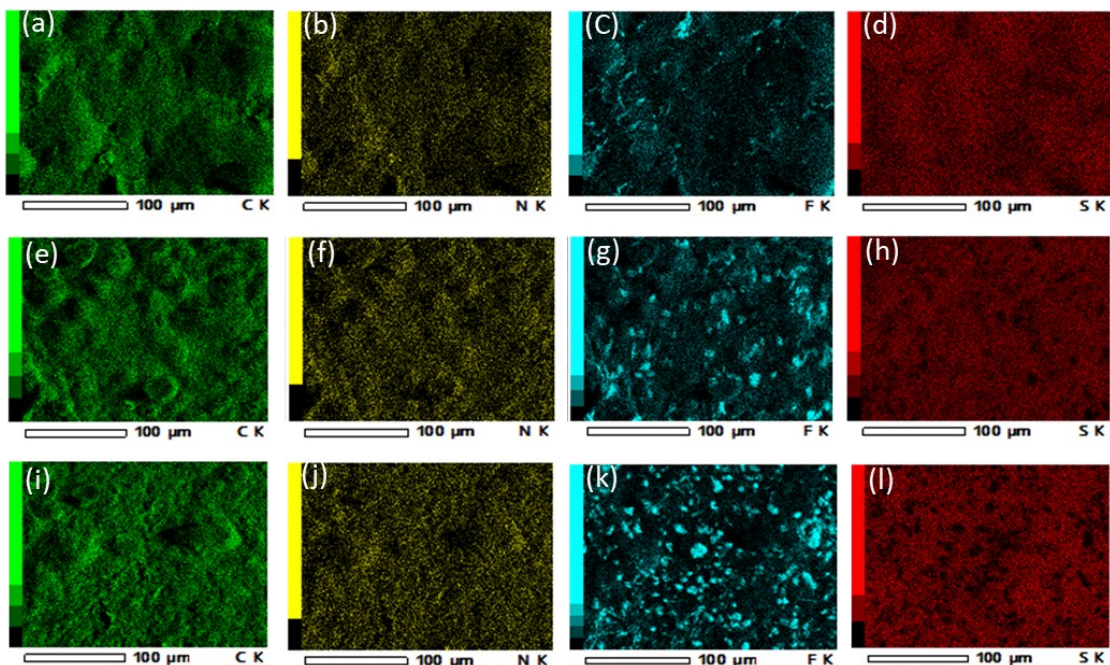


Figure S2 Maps of the distribution of elements C, N, F and S in various electrolytes obtained from energy dispersive X-ray (EDX) analysis. EDS of (a, b, c and d) PEO₁₀₀, (e, f, g, and h) PTFE₂₀ PEO₈₀, and (i, j, k, and l) PTFE₃₀ PEO₇₀.

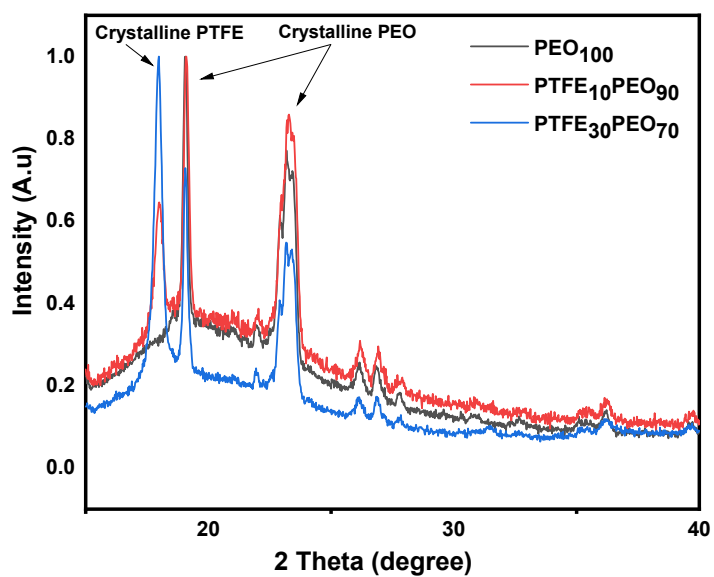


Figure S3 Powder X-ray diffraction of PEO₁₀₀, PTFE₂₀ PEO₈₀, and PTFE₃₀ PEO₇₀.

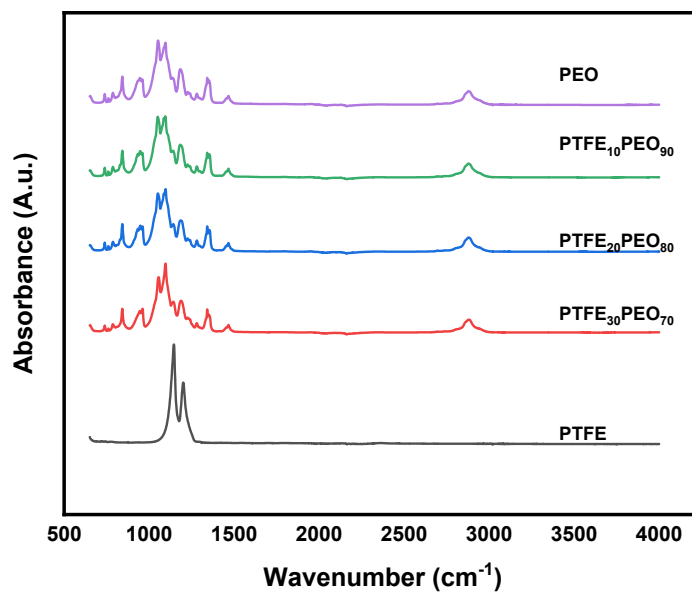


Figure S4 FTIR spectra of the solid electrolytes with different composition of PEO and PTFE

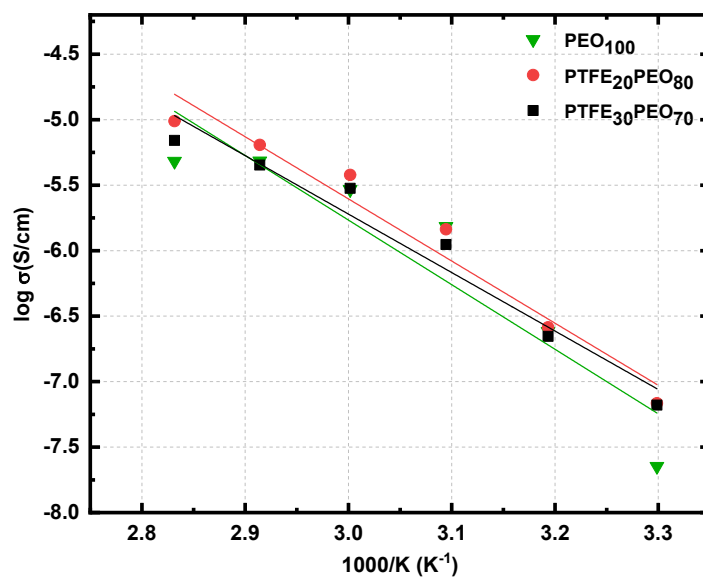


Figure S5 Arrhenius plots for PEO, PTFE₂₀PEO₈₀, PTFE₃₀PEO₇₀ composite polymer electrolyte

Material	Slope (K)	E_a (J/mol)
PEO ₁₀₀	-4.9314	40.9996596
PTFE ₂₀ PEO ₈₀	-4.7447	39.4474358
PTFE ₃₀ PEO ₇₀	-4.4621	37.0978994

Table S1 Activation energy calculations for PEO₁₀₀, PTFE₂₀PEO₈₀, and PTFE₃₀PEO₇₀ composite polymer electrolyte.

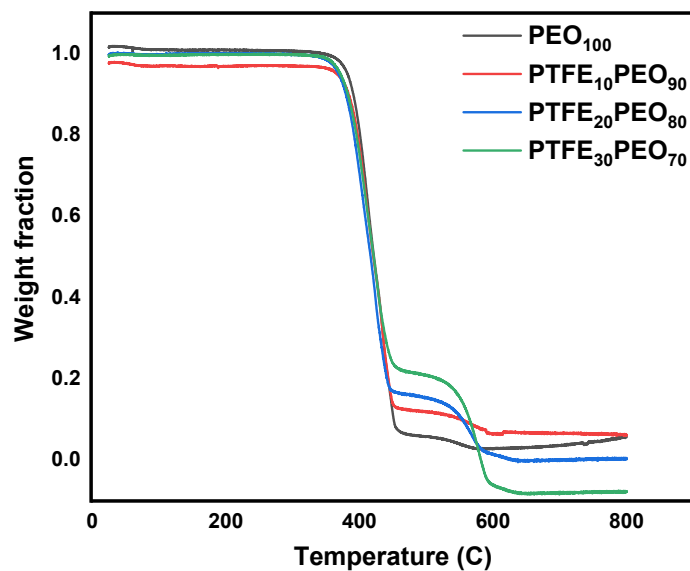


Figure S6 Thermogravimetric data obtained for PEO and PEO-PTFE composite electrolytes

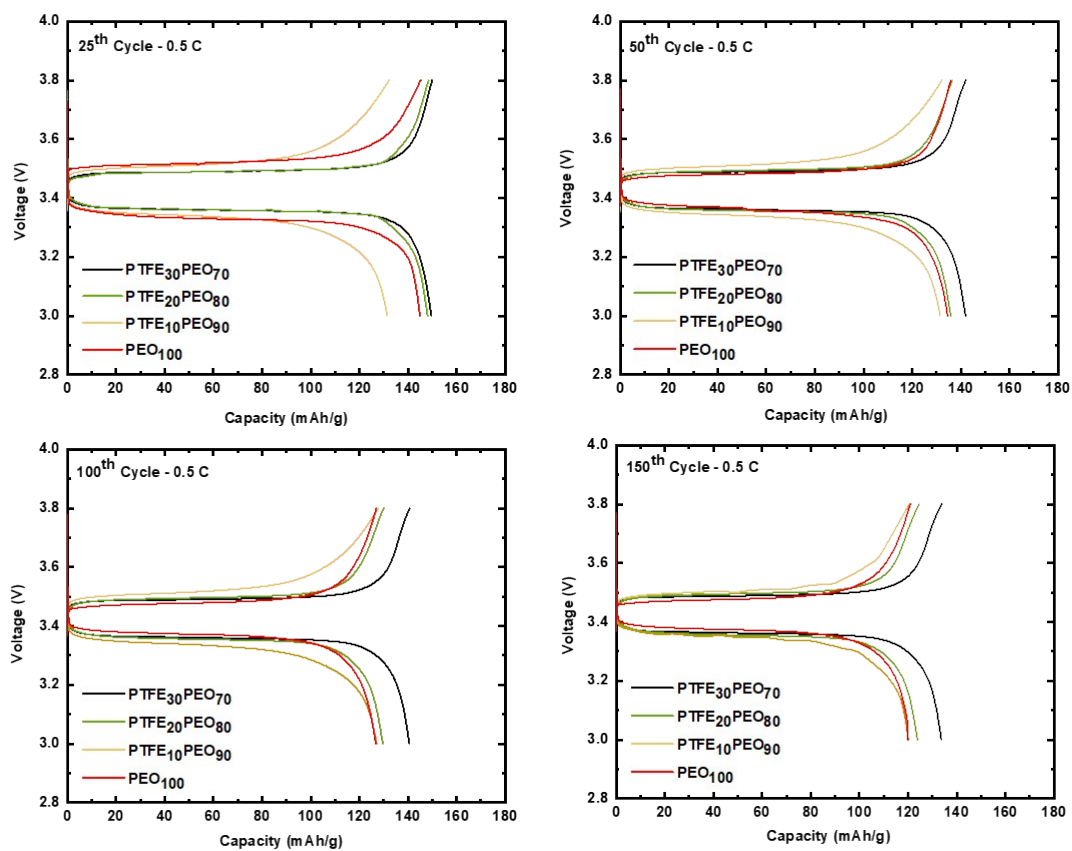


Figure S7 Voltage profile for the cycles (a) 25, (b) 50, (c) 100 and (d) 150 for all the composite electrolytes

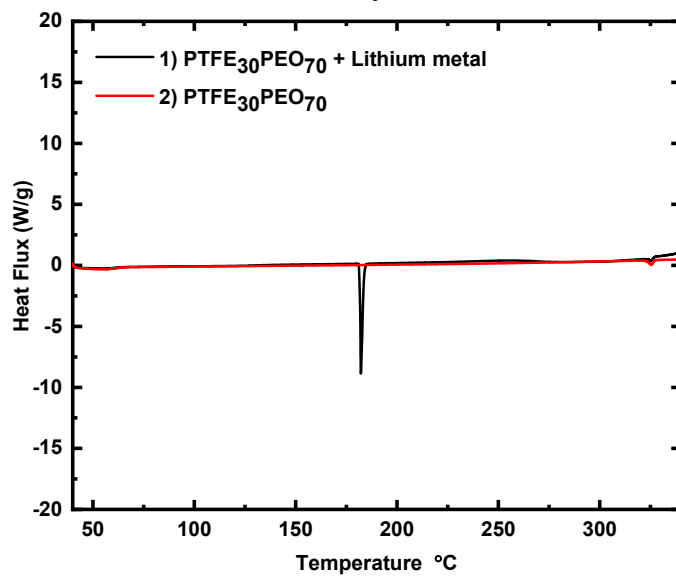


Figure S8 DSC response for PTFE₃₀ PEO₇₀ and PTFE₃₀ PEO₇₀ with Li metal