

Supporting Information

A robust succinonitrile-based gel polymer electrolyte for lithium ion batteries withstanding mechanical folding and high temperature

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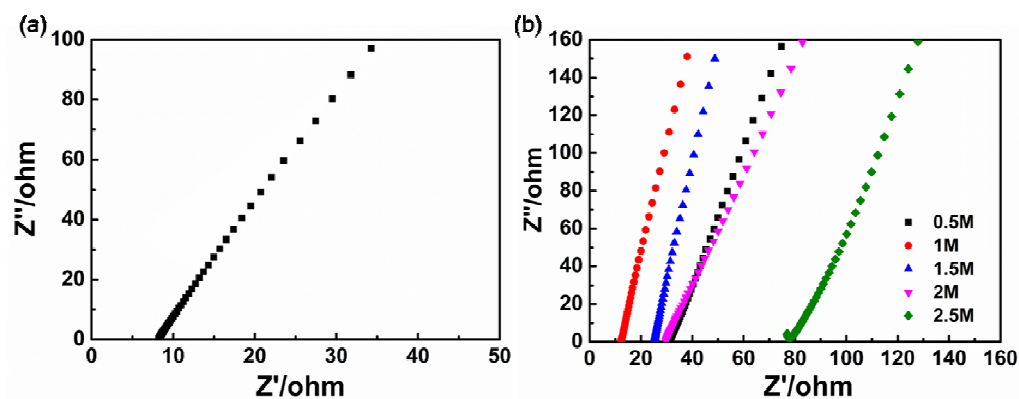


Figure S1. AC impedance spectra of GPE-LE (a) and GPE-SN-IM (b) films with different lithium salt concentrations at 25 °C.

In AC impedance spectra (Figure S1), the intercept between the straight line and the horizontal axis is the bulk impedance (R_b). The ionic conductivity (σ) can be calculated by the equation: $\sigma = \frac{d}{R_b S}$. Where d and S are the thickness and the effective area of polymer electrolyte, respectively, and R_b is the bulk impedance of electrolyte.

$$\text{GPE-LE: } \sigma = \frac{d}{R_b S} = \frac{0.029}{8.2 \times 1.8} = 1.92 \times 10^{-3} \text{ S} \cdot \text{cm}^{-1}.$$

$$\text{GPE-SN-IM (with 1M lithium salt): } \sigma = \frac{d}{R_b S} = \frac{0.032}{10.9 \times 1.8} = 1.63 \times 10^{-3} \text{ S} \cdot \text{cm}^{-1}.$$

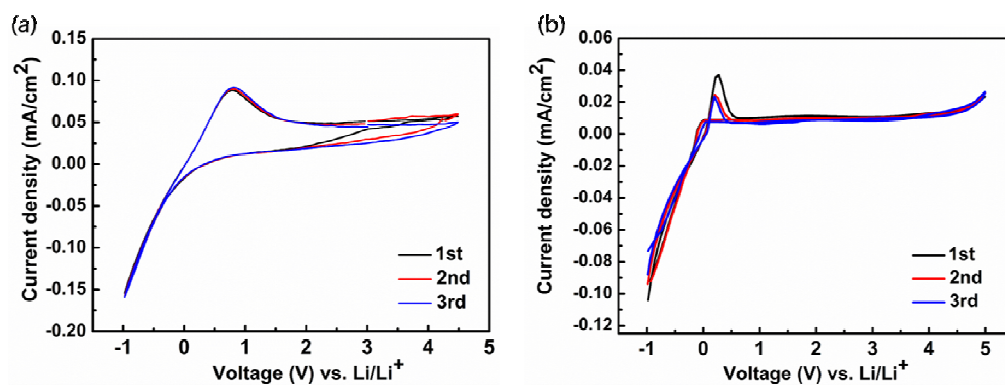


Figure S2. Cyclic voltammetry profiles of GPE-LE (a) and GPE-SN-IM (b) at a scanning rate of $1 \text{ mV} \cdot \text{s}^{-1}$ at room temperature, using a Li/ electrolytes/stainless steel cell at 25°C .