Supporting Information

Diglyme-incorporated gelled polymer: An efficient quasi-solid electrolyte for sodium ion battery

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Table S1: Fitting parameters of Nyquist plots (before and after polarization) of the symmetric cell Na|SIL-GPE|Na by equivalent circuit.

<table>
<thead>
<tr>
<th>Cell</th>
<th>$R_1$ ($R_0/R_s$) ($\Omega$ cm$^2$)</th>
<th>$R_2$ ($\Omega$ cm$^2$)</th>
<th>CPE Q ($\Omega$ cm$^2$), n</th>
<th>W ($\Omega$ s$^{-1}$ cm$^{-2}$)</th>
<th>$W_{s1}$ ($\Omega$ s$^{0.5}$ cm$^{-0.5}$), $W_{sr1}$ ($\Omega$ s$^{-0.5}$ cm$^{0.5}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>315.14</td>
<td>15200</td>
<td>$1.25 \times 10^{-6}$, 0.75</td>
<td>1816.2</td>
<td>21682, 0.0155</td>
</tr>
<tr>
<td>After</td>
<td>332.32</td>
<td>16421</td>
<td>$1.23 \times 10^{-6}$, 0.75</td>
<td>1880.9</td>
<td>22549, 0.0156</td>
</tr>
</tbody>
</table>

Figure S1. FTIR spectra of (a) pure PVdF-HFP, (b) pure G2, (c) PVdF-HFP/G2, (d) PVdF-HFP/G2/NaTFSI (SIL-GPE), and (e) sodium salt NaTFSI.
**Figure S2.** Raman spectra of (a) pure PVdF-HFP, (b) PVdF-HFP/G2, (c) PVdF-HFP/G2/NaTFSI (SIL-GPE) and (d) sodium salt NaTFSI.

**Figure S3.** TG curve of pure G2. Reproduced with permission of ACS Publications.
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Figure S4: DSC spectra of (a) pure G2, and (b) pure PVdF-HFP film.

Figure S5. Nyquist plot of the cell; SS|PVdF-HFP/G2/NaTFSI (SIL-GPE)|SS, recorded at room temperature. SS stands for stainless steel sheet.
Figure S6. Nyquist plot of the cell; Na|SIL-GPE|Na, recorded at room temperature.

Figure S7. EIS plots of the half-cell; Na|(SIL-GPE)|Na0.7CoO2: (a) before cycling test, and (b) comparison of EIS plot before and after 100 cycles.