

Supporting Information

Use of a [EMIM][OAc]/GVL-based organic electrolyte solvent to engineer chitosan into nanocomposite organic ionogel electrolyte for flexible supercapacitors

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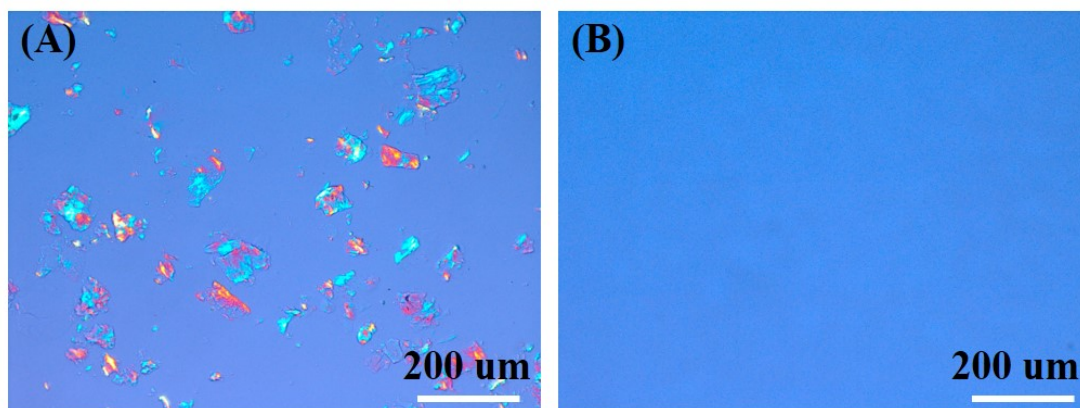


Fig. S1 POM images of chitosan (A) suspended and (B) dissolved in [EMIM][OAc]/GVL-based OES ($\chi_{ILs} = 0.5$).

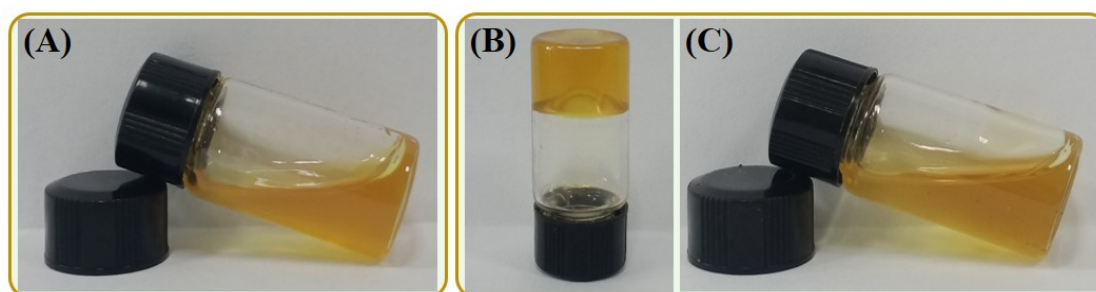


Fig. S2 Pictures of (A) a 8 wt% chitosan solution in [EMIM][OAc]/GVL ($\chi_{ILs} = 0.5$) at 25 °C, and chitosan/nano-SiO₂/[EMIM][OAc]/GVL ($\chi_{ILs} = 0.5$) system (chitosan, 8 wt%; nano-SiO₂, 2 wt%) at (B) 25 °C and (C) 90 °C.

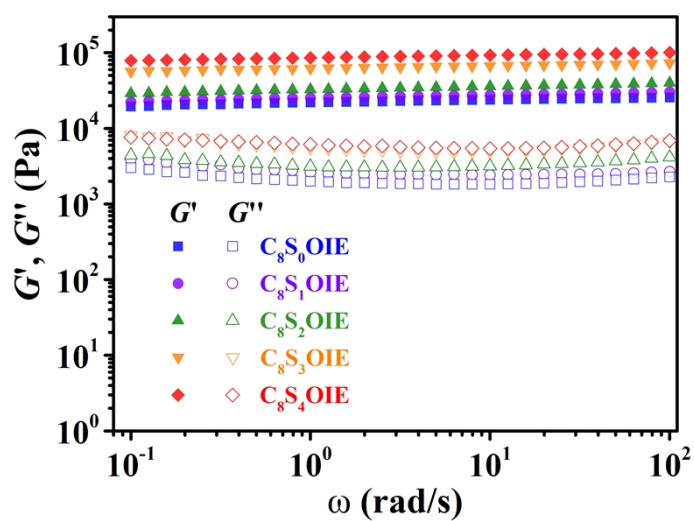


Fig. S3 Frequency dependence of G' and G'' for the C₈S₀OIE, C₈S₁OIE, C₈S₂OIE, C₈S₃OIE, and C₈S₄OIE samples.

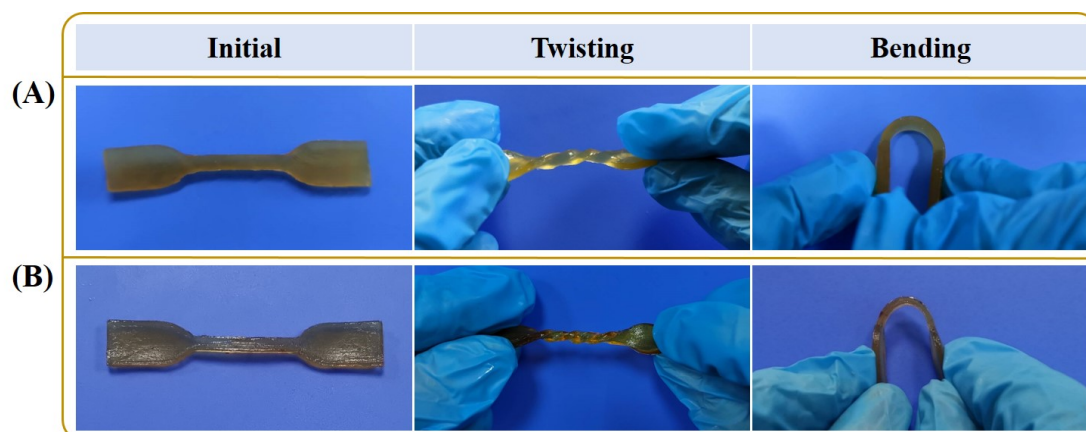


Fig. S4 Photographic pictures of C_8S_2OIE with dog-bone shape under initial, twisting and bending states at (A) $-25\text{ }^\circ\text{C}$ and (C) $80\text{ }^\circ\text{C}$.

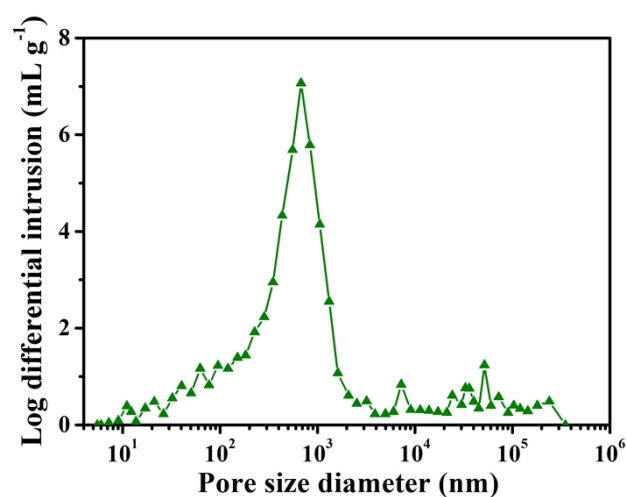


Fig. S5 Pore size distribution of C_8S_2OIE , determined by automatic mercury intrusion porosimeter.

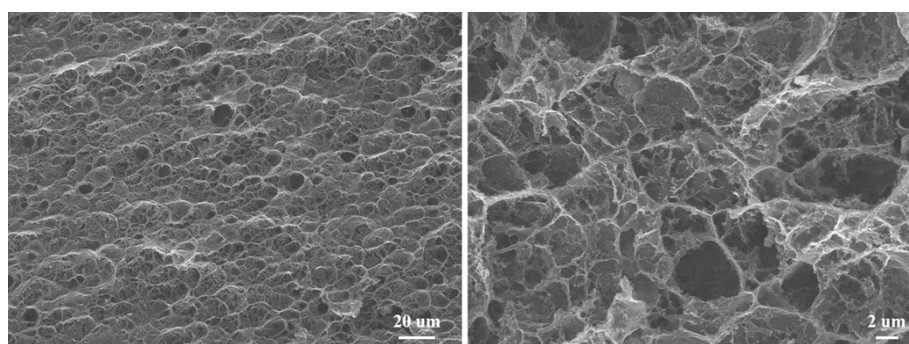


Fig. S6 Cross-sectional SEM images of Cryo- C_8S_4OIE .

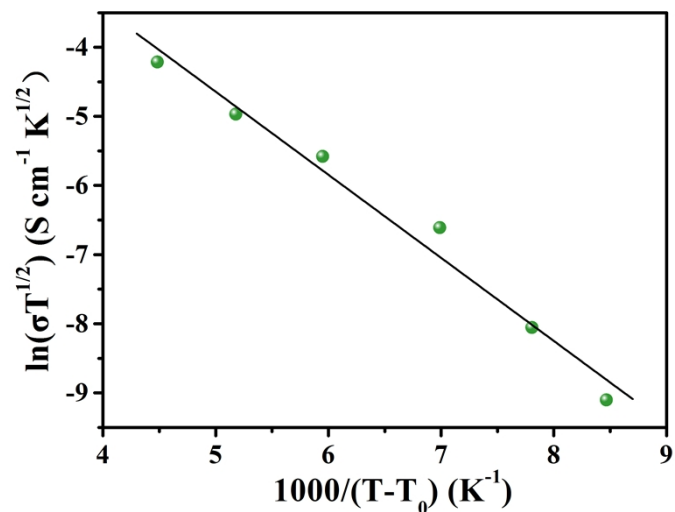


Fig. S7 VTF fitting curve of the conductivity of the C_8S_2OIE sample.

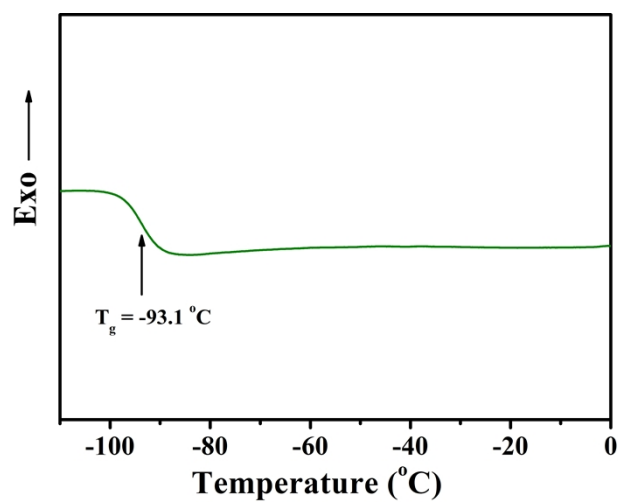


Fig. S8 DSC thermogram of C_8S_2OIE .

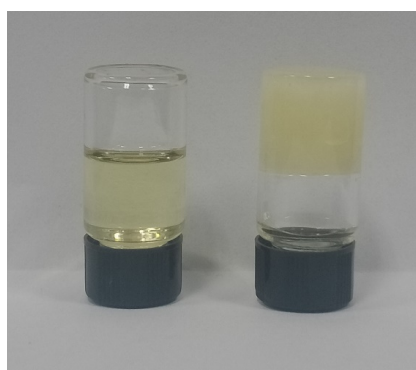


Fig. S9 Photographic pictures of $[EMIM][OAc]/GVL$ ($\chi_{ILs} = 0.5$) system (left) and $[EMIM][OAc]$ (right) after kept at $-25 \text{ }^\circ\text{C}$ for 24 h.

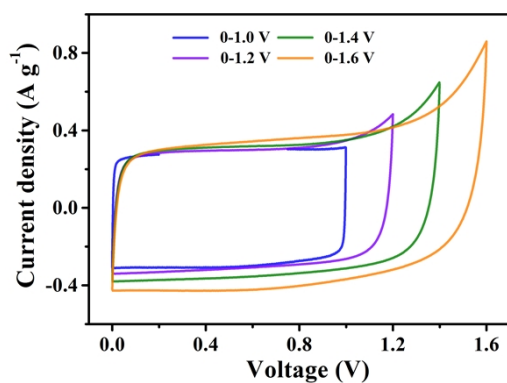


Fig. S10 CV curves with different voltage windows at 5 mV s⁻¹ for C₈S₂OIE-based supercapacitor.

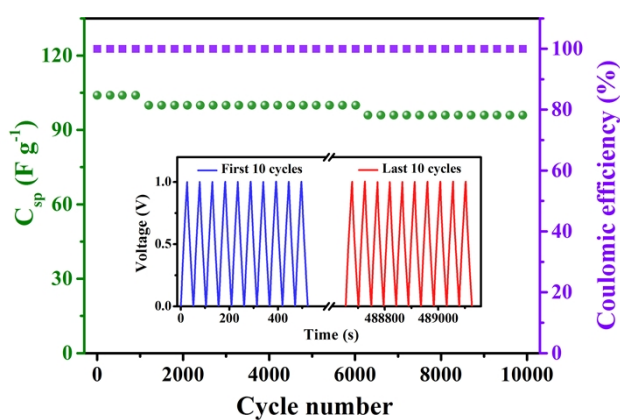


Fig. S11 Cyclic stability at 80 °C (2 A g⁻¹) of the C₈S₂OIE-based supercapacitor.

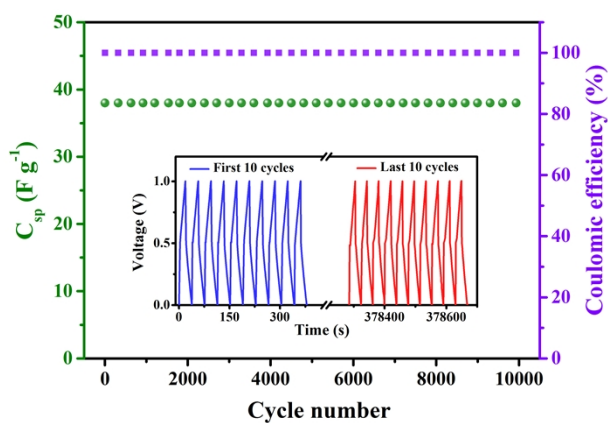


Fig. S12 Cyclic stability at -25 °C (1 A g⁻¹) of the C₈S₂OIE-based supercapacitor.

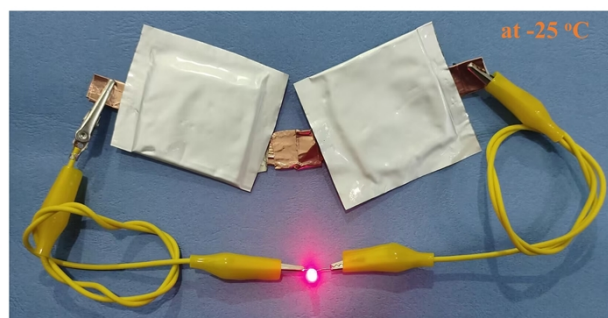


Fig. S13 LED bulb lighting test by the C_8S_2OIE -based supercapacitor at $-25\text{ }^\circ\text{C}$.