

Supporting Information

Tetrathiafulvalene: Effective Organic Anodic Materials for WO₃-based Electrochromic Devices

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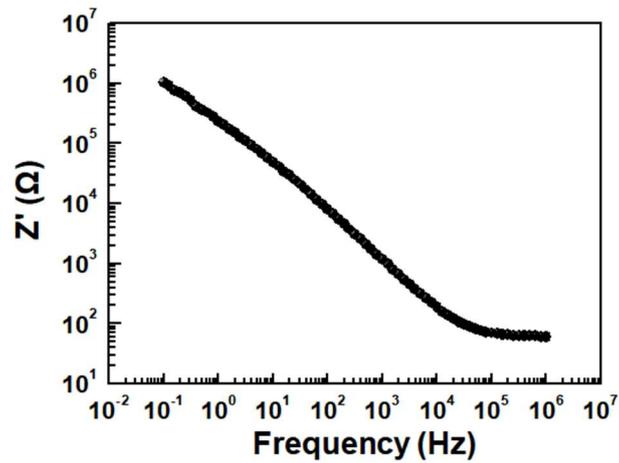


Fig. S1 Plots of Z' as a function of frequency for the electrolyte solution containing 0.03M TTF. Inset scheme indicates the metal-insulator (electrolyte)-metal (MIM) configuration used in the electrochemical impedance (EIS) study, in which area (A) and thickness (h) of the cell were 11.5 mm^2 and 0.4 mm, respectively.

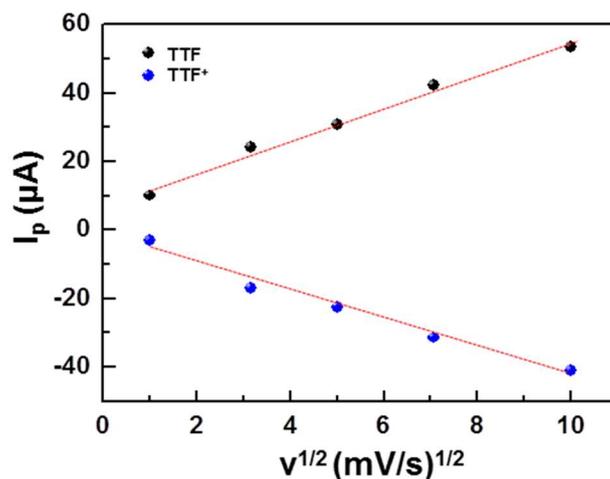


Fig. S2 Plots of the peak current of the cyclic voltammograms given in Fig. 2 as a function of the square root of the scan rate, from which diffusion coefficient of TTF was estimated from the slope of the linear fit using Randles-Sevcik equation expressed by $i_p = 0.4463 nFAC \left(\frac{nFvD}{RT}\right)^{\frac{1}{2}}$ where i_p , n , F , A , C , R , T , D and v are the peak current, the number of electrons transferred in the redox reaction, electrode area, molecular concentration, gas constant, temperature, diffusion coefficient, and scan rate, respectively.

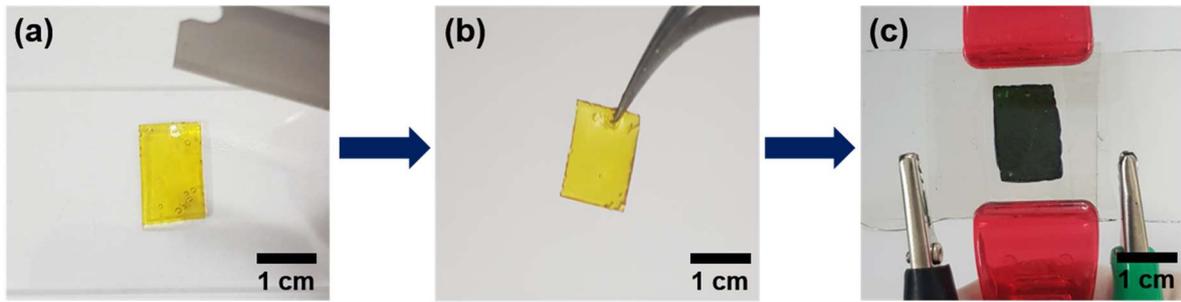


Fig. S3 Device fabrication process through ‘cut-and-stick’ method: (a) cutting ion gels containing TTF into the desired shape, (b) transferring to the target electrode surface, and (c) assembling a top electrode and applying -0.9 V for coloration.

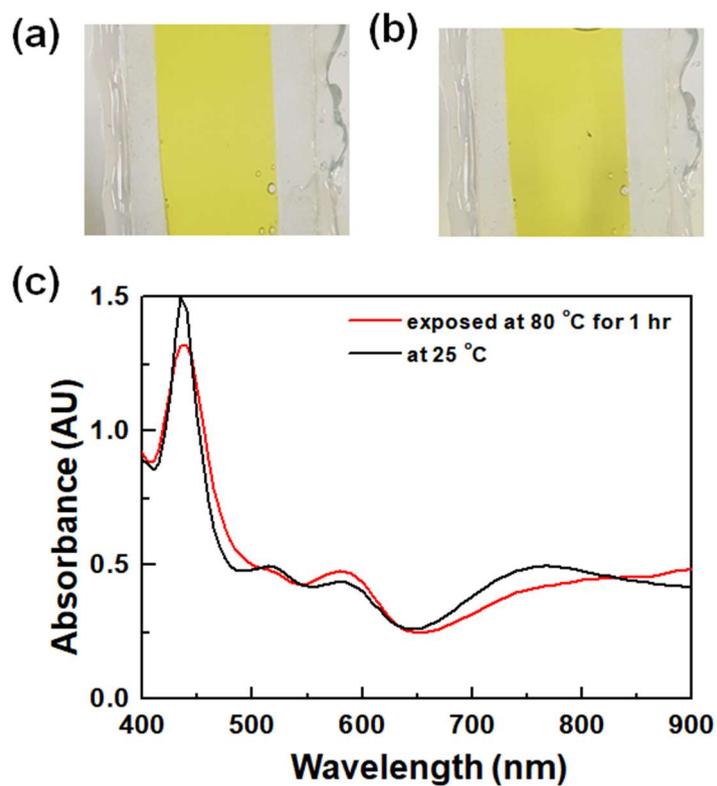


Fig. S4 Photographs of the ECD containing 0.03 M TTF (a) at 25 °C and (b) after being exposed at 80 °C for 1 h. (c) UV-Vis absorption spectra of colored states at different conditions.

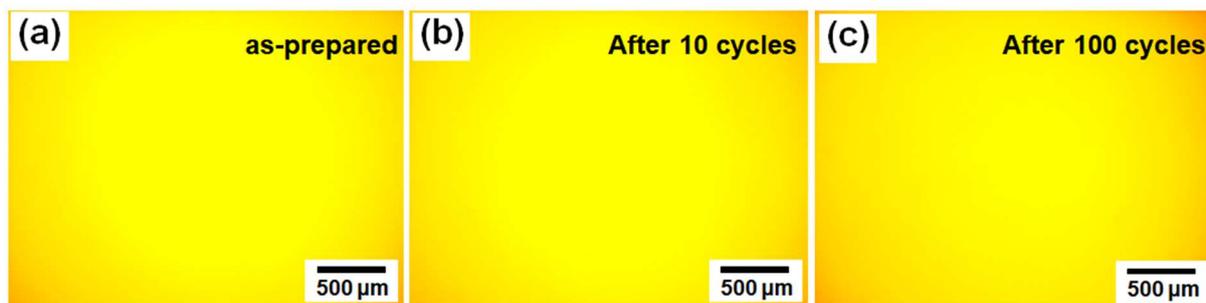


Fig. S5 Optical photographs of 0.03 M TTF-containing electrolyte layer of the ECD: (a) as-prepared, (b) after 10 cycles, and (c) after 100 cycles.