

Supporting Information

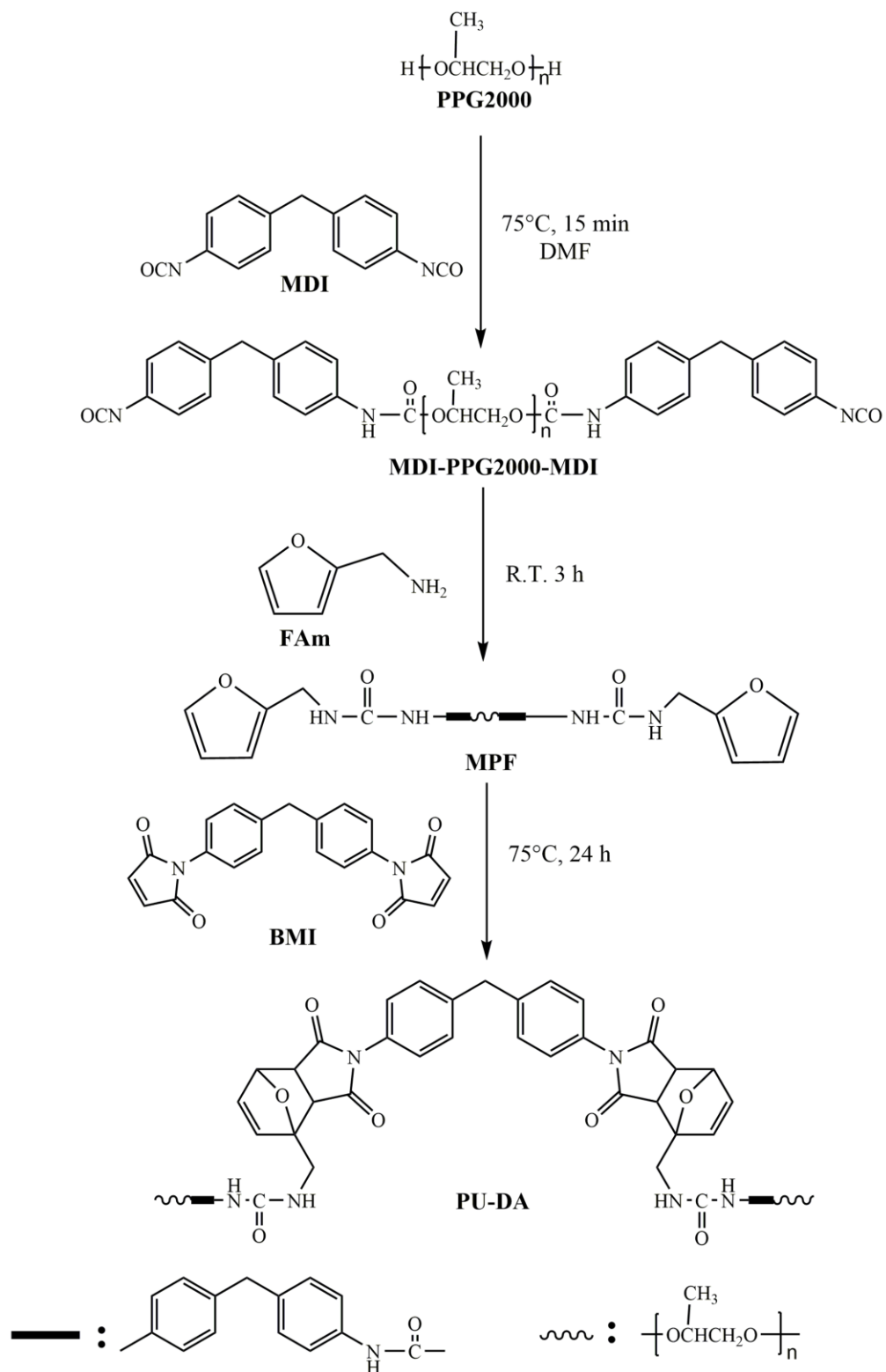
Thermo-driven self-healable PEDOTs-based all-organic films with excellent electrochromic performances

Xiaowen Xie¹, Jiarui Yu¹, Zhanqi Li², Zhixin Wu¹, Shuai Chen^{1,2*}

¹ Jiangxi Key Laboratory of Flexible Electronics, School of Pharmacy,
Jiangxi Science & Technology Normal University, Nanchang 330013,
Jiangxi, China.

² Jiangxi Engineering Laboratory of Waterborne Coatings, Nanchang
330013, Jiangxi, China.

*: Corresponding author. Fax/Tel: +86-791-83832345; Email:
shuaichen@jxstnu.edu.cn



Scheme S1. Synthetic route of PU-DA ^[1].

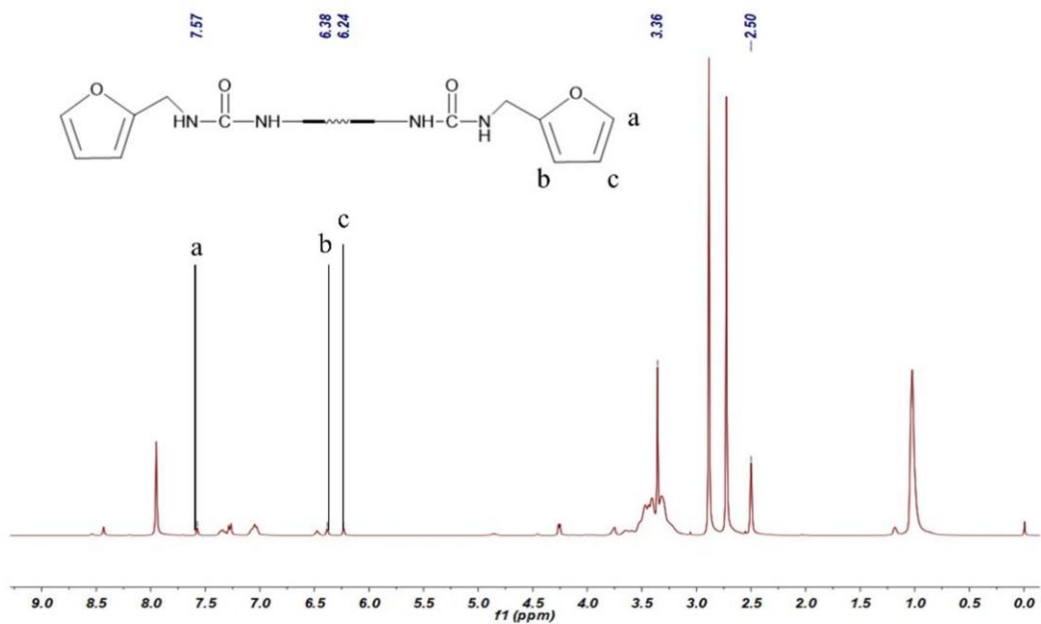


Figure S1. ^1H NMR spectrum of MPF (400 MHz, DMSO-d_6).

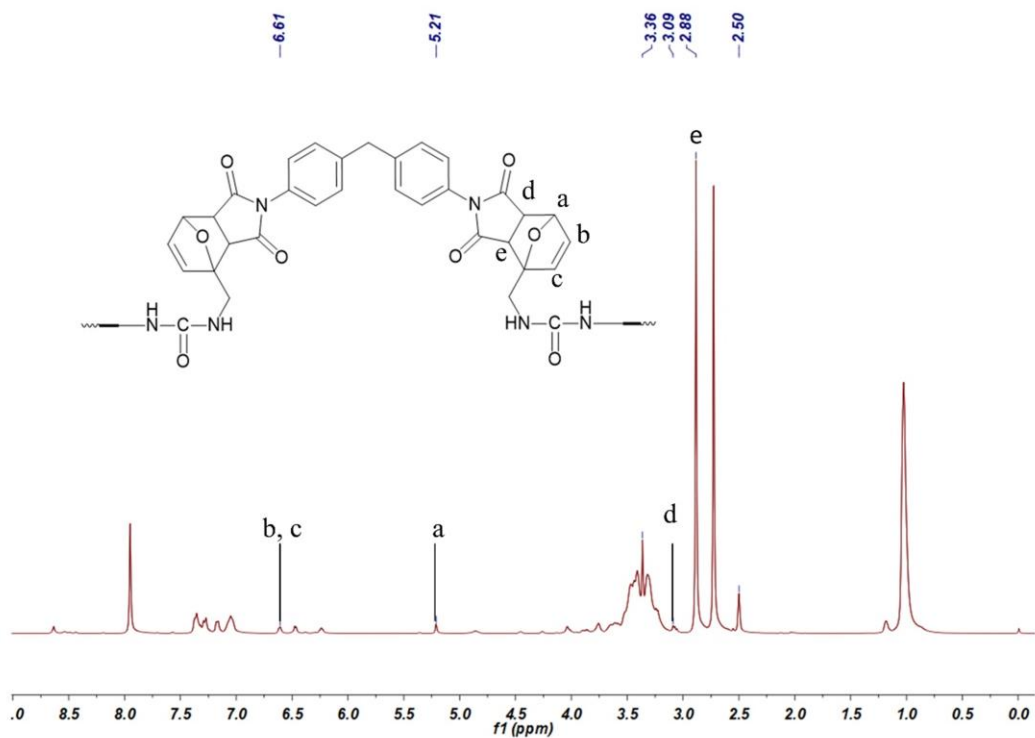


Figure S2. ^1H NMR spectrum of PU-DA (400 MHz, DMSO-d_6).

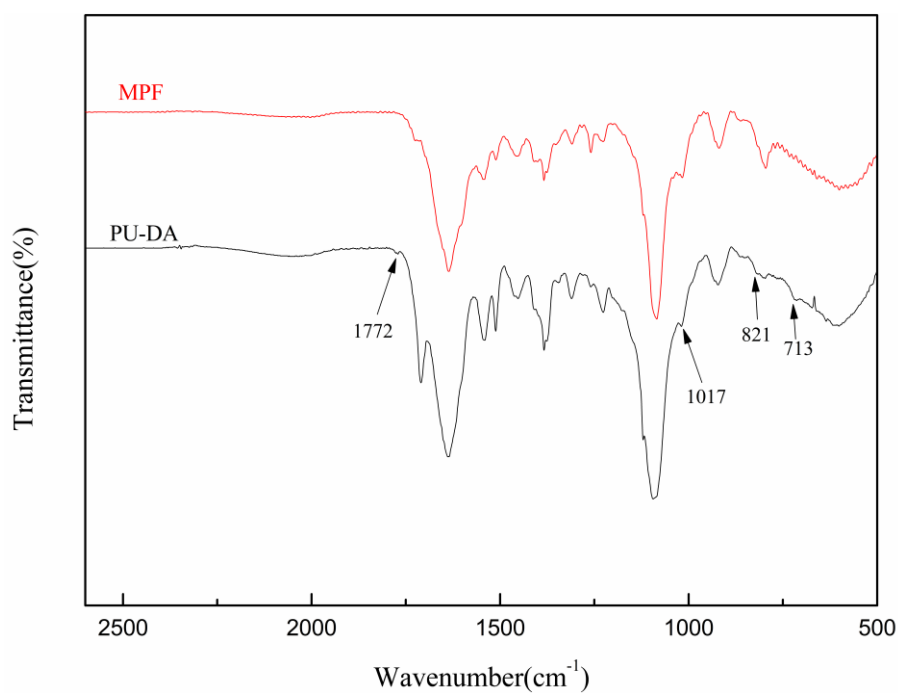
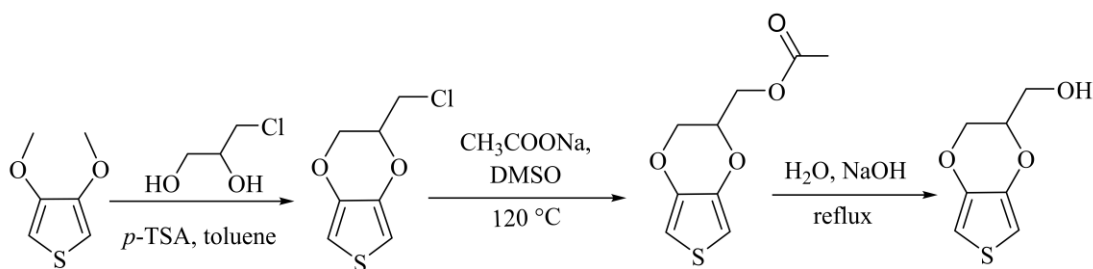


Figure S3. FT-IR spectra of MPF and PU-DA.



Scheme S2. Synthetic route of EDTM.

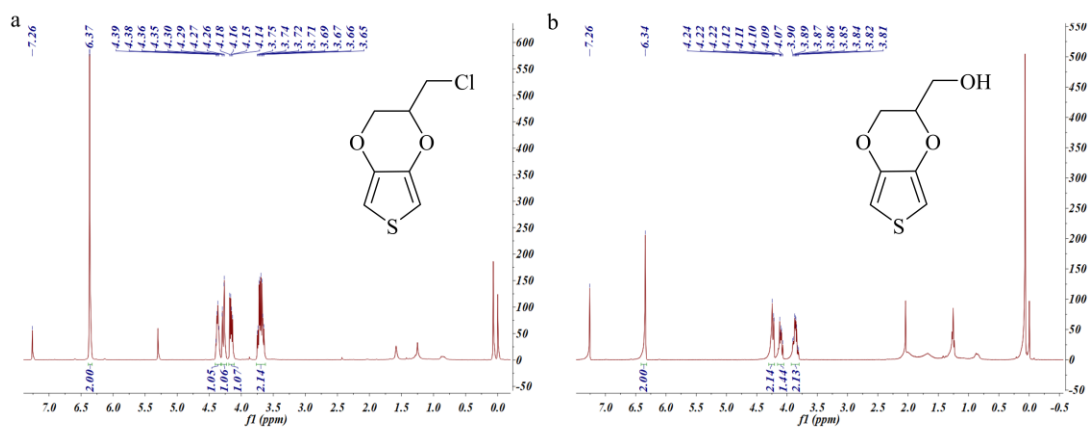


Figure S4. ^1H NMR (400 MHz, CDCl_3) spectra of (a) EDOT-MeCl and (b) EDTM.

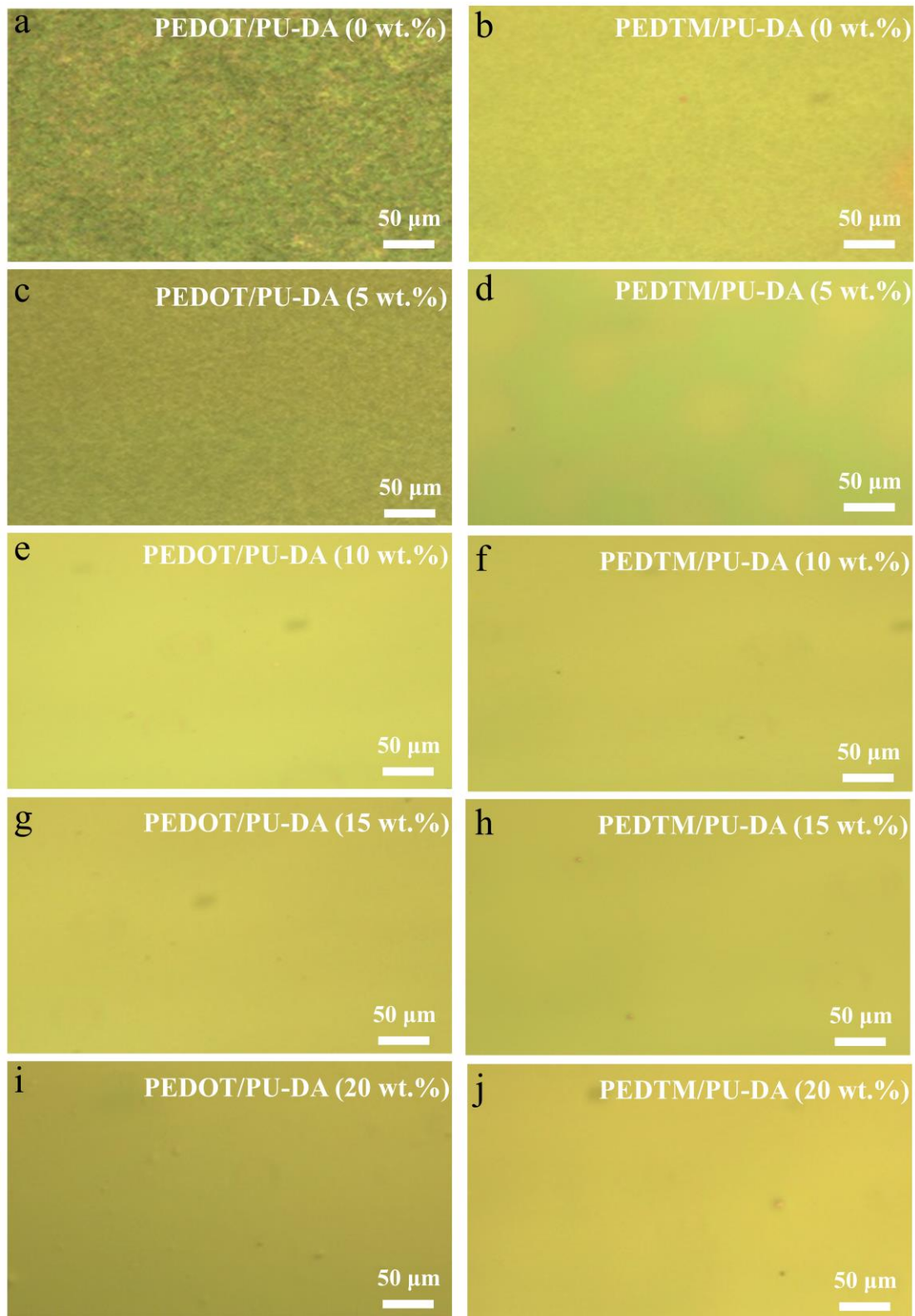


Figure S5. Microscope morphology photos of PEDOT/PU-DA (a, c, e, g, i) and PEDTM/PU-DA (b, d, f, h, j) films at varied PU-DA contents (0 wt.%, 5 wt.%, 10 wt.%, 15 wt.%, 20 wt.%).

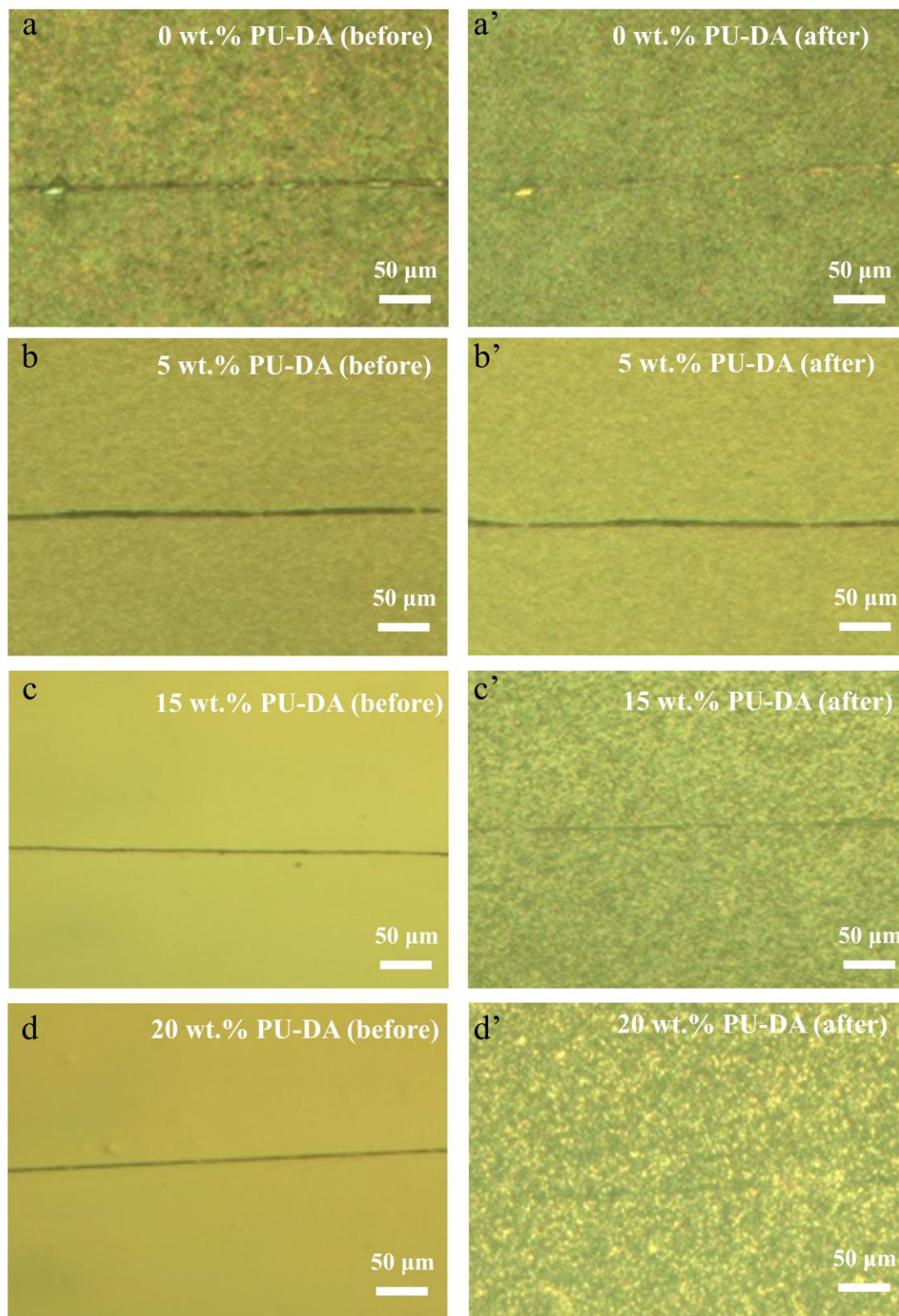


Figure S6. Microscope morphology photos of PEDOT/PU-DA films at varied PU-DA contents (0 wt.%, 5 wt.%, 15 wt.%, 20 wt.%) before (a, b, c, d) and after (a', b', c', d') self-healing.

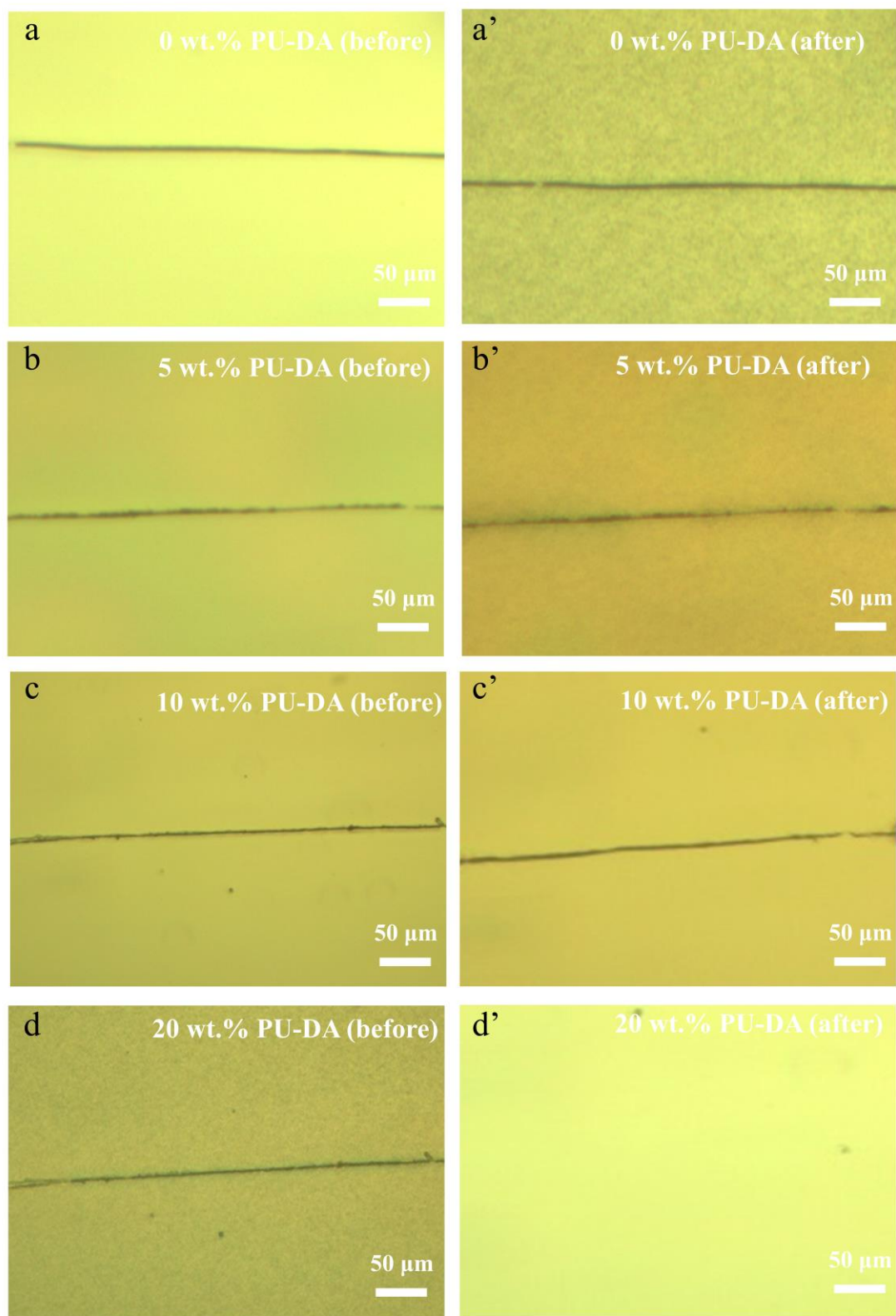


Figure S7. Microscope morphology photos of PEDTM/PU-DA films at varied PU-DA contents (0 wt.%, 5 wt.%, 10 wt.%, 20 wt.%) before (a, b, c, d) and after (a', b', c', d') self-healing.

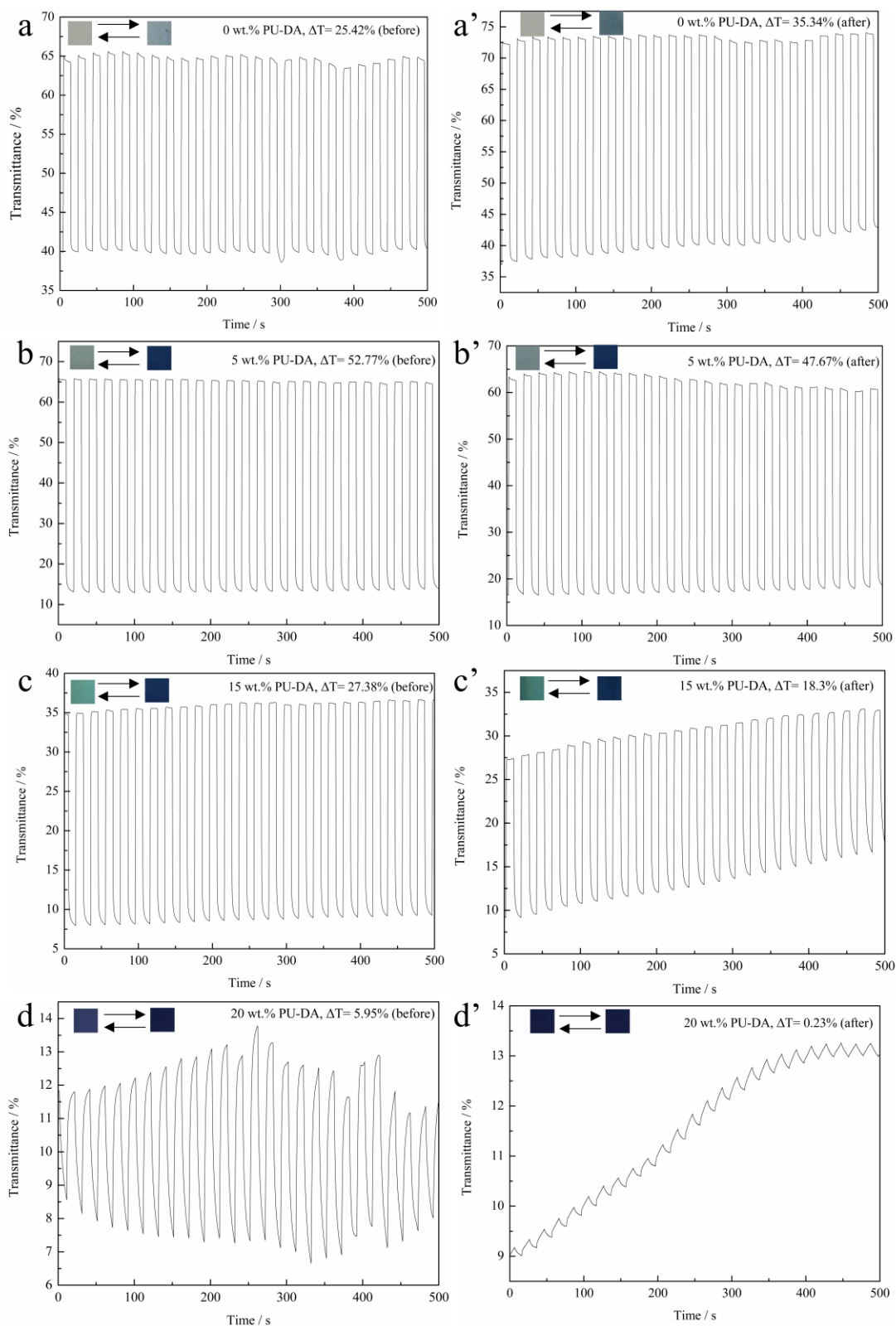


Figure S8. Variation curves of transmittance change at 600 nm and color change photos (inset) of PEDOT/PU-DA films at varied PU-DA contents (0 wt.%, 5 wt.%, 15 wt.%, 20 wt.%) before (a, b, c, d) and after (a', b', c', d') self-healing.

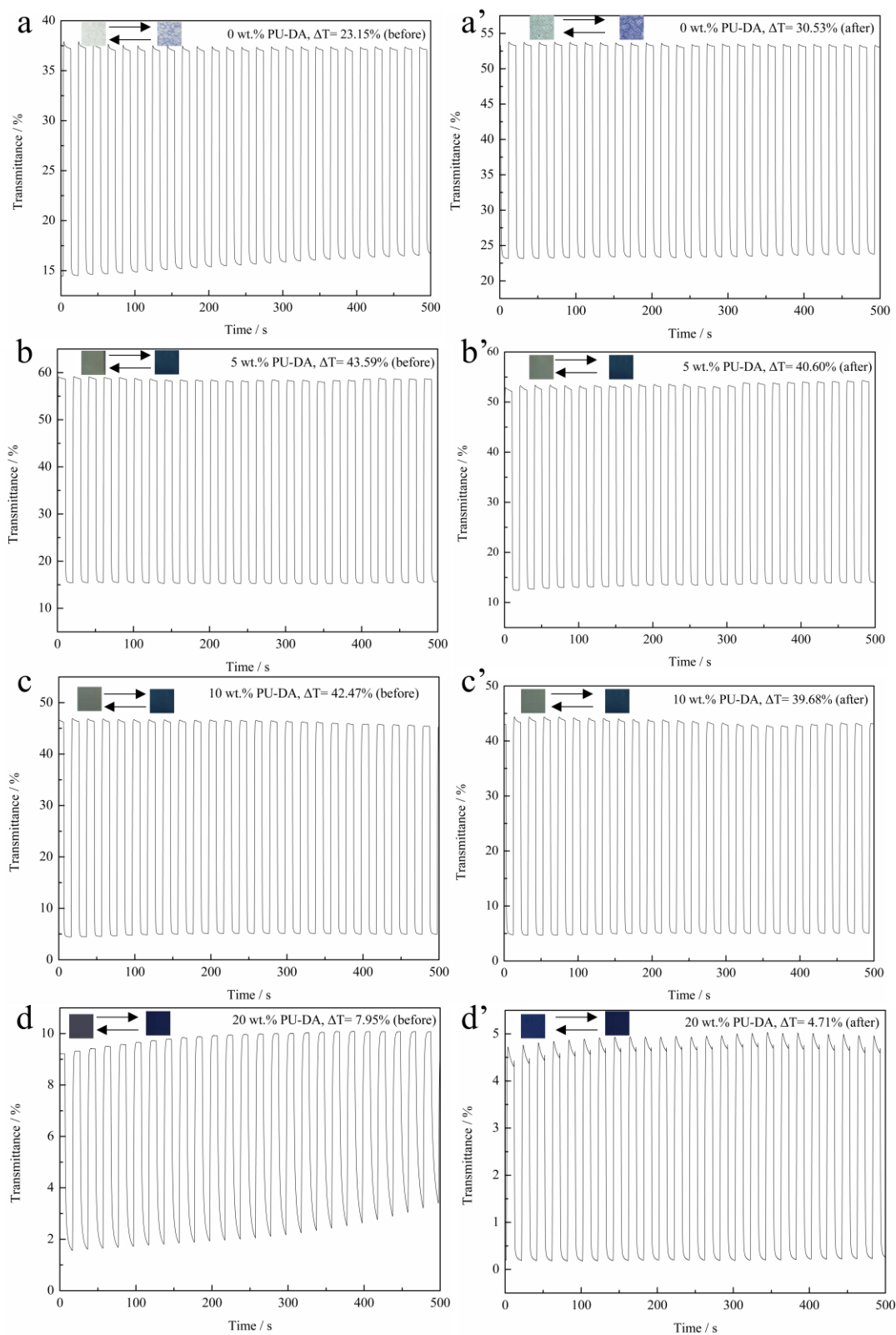


Figure S9. Variation curves of transmittance change at 610 nm and color change photos (inset) of PEDTM/PU-DA films at varied PU-DA contents (0 wt.%, 5 wt.%, 10 wt.%, 20 wt.%) before (a, b, c, d) and after (a', b', c', d') self-healing.

Reference:

- [1] J. R. Yu, N. Gao, X. W. Xie, X. Xin, Z. Q. Li, S. Chen, J. K. Xu, *Journal of Polymer Science*, 2021, **60**, 794-802.