

Supporting information

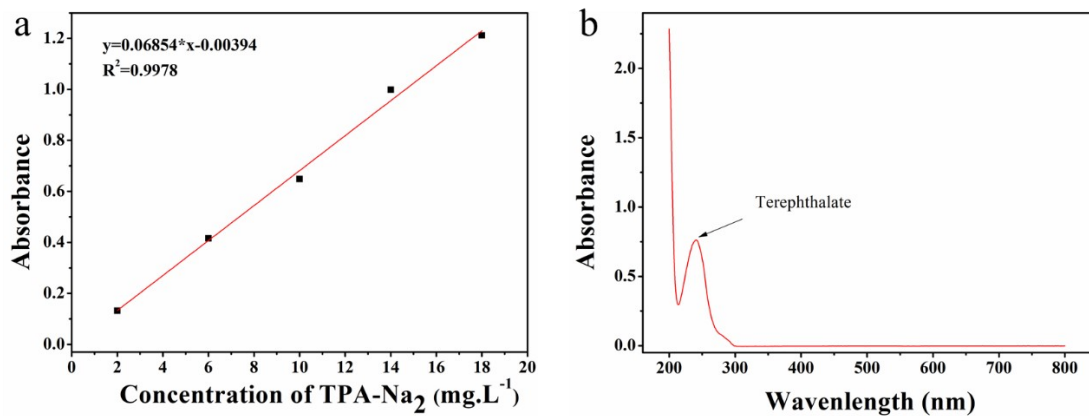


Fig. S1 Standard curve of TPA-Na₂ (a), and UV-Vis absorption spectrum of recovered TPA-Na₂ (b) after treatment of TPA with sodium hydroxide according to the reported method. ¹

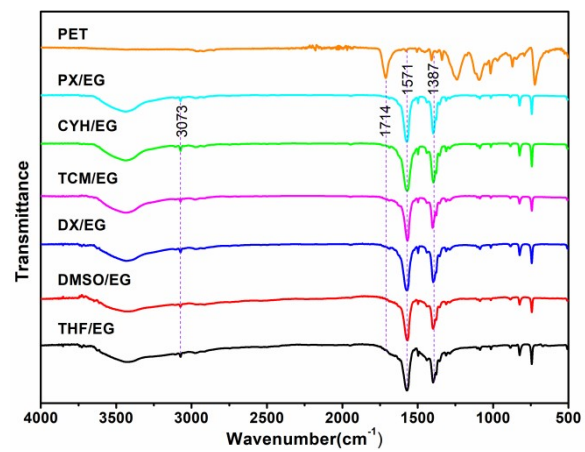


Fig. S2 FTIR spectra of raw material PET, self-separated product in the presence of various cosolvents.

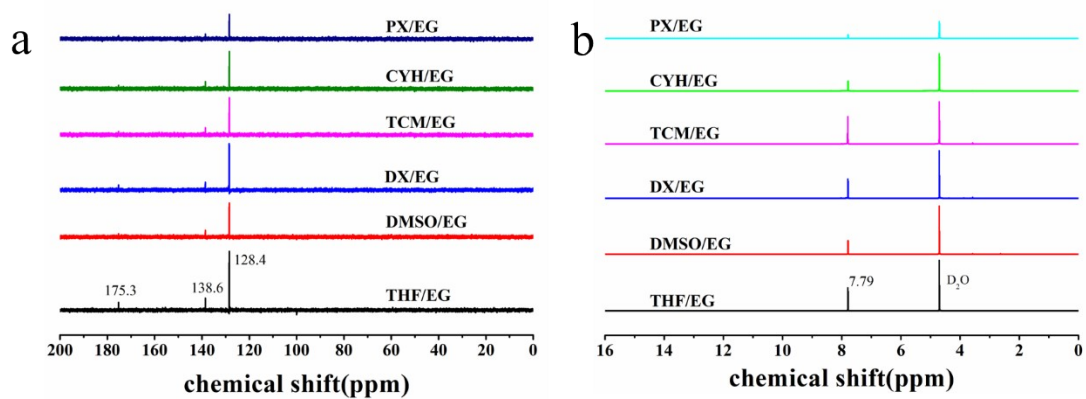


Fig. S3 ^{13}C NMR (a) and ^1H NMR (b) of the self-separated product in the presence of various cosolvents.

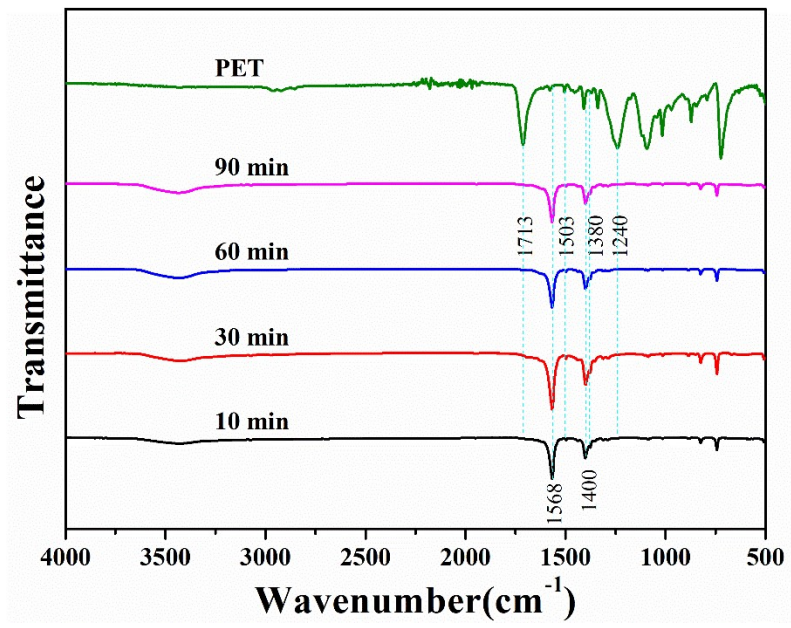


Fig. S4 FTIR spectra of self-separated product at different time.

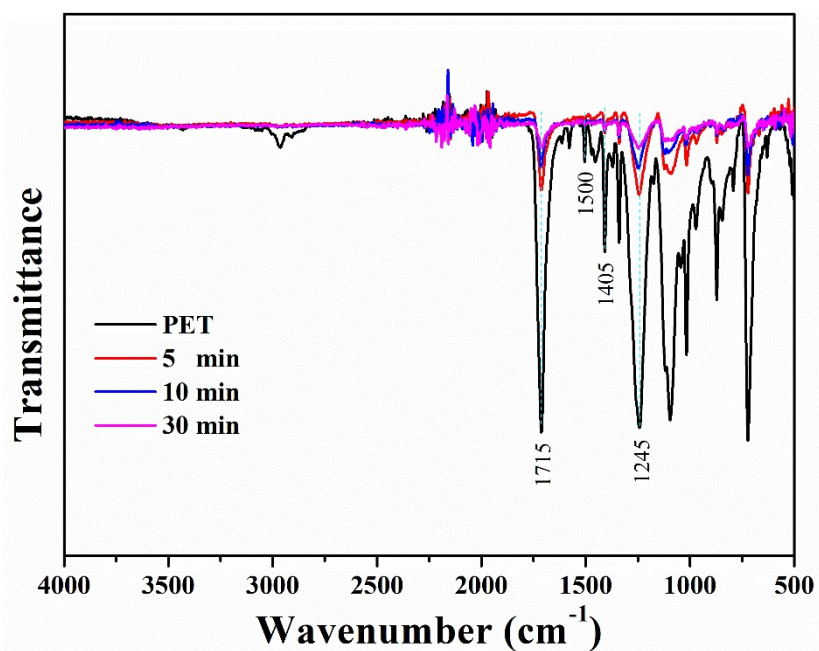


Fig. S5 FTIR spectra of unreacted PET residues at different time.

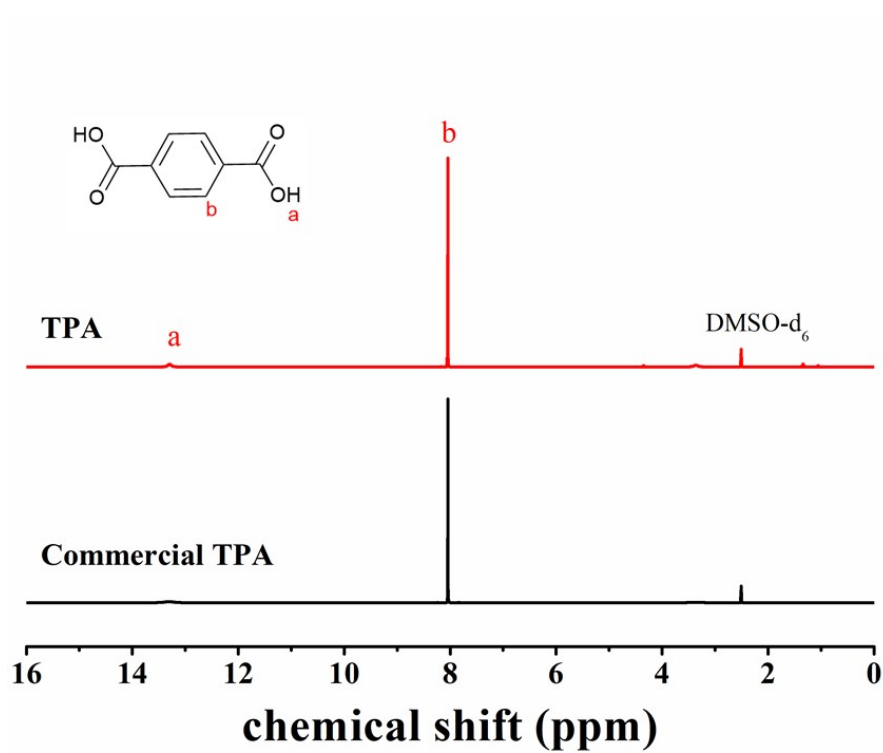


Fig. S6 NMR spectrum of TPA compared to commercial TPA.

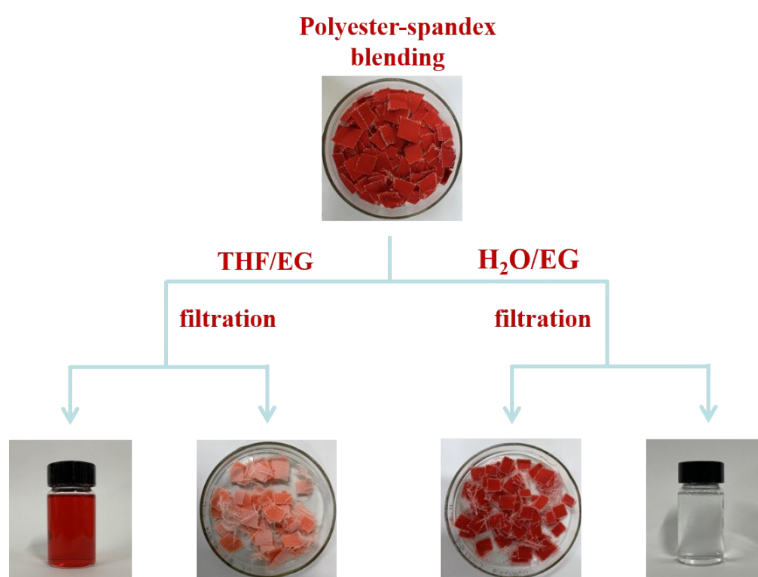


Fig. S7 The elution effect of THF on waste textile dyes compared to water.

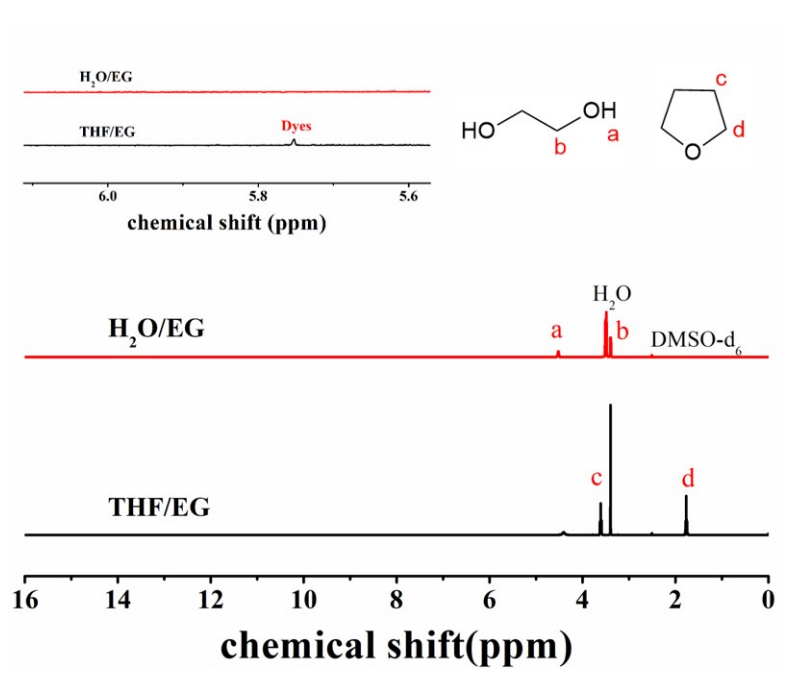


Fig. S8 ^1H NMR spectrum of the filtrate after THF/EG solution and $\text{H}_2\text{O}/\text{EG}$ solution decolorized textiles, respectively.

References

1. S. A. Ravichandran, V. P. Rajan, P. V. Aravind, A. Seenivasan, D. G. Prakash and K. Ramakrishnan, *Macromolecular Symposia*, 2016, **361**, 30-33.