

Supplementary Information

Synthesis and Properties of Colorless Copolyimides Derived from 4,4'-Diaminodiphenyl Ether-Based Diamines with Different Substituents

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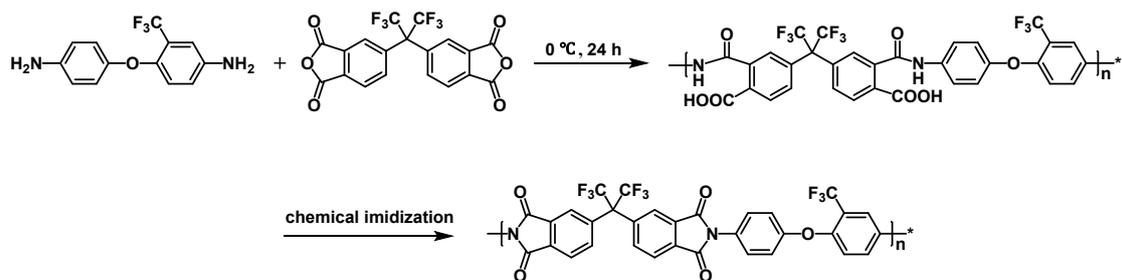
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Fax/Tel: +86-02988431653.

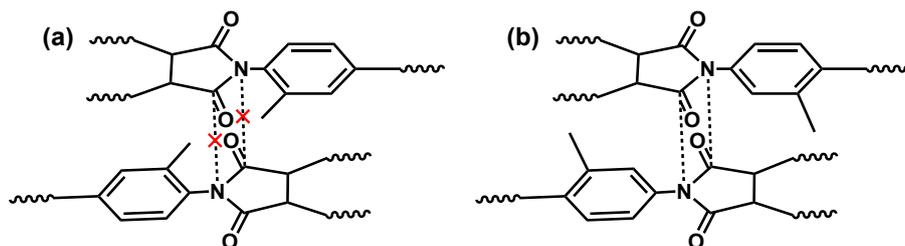
[#]R. Lian and X. Lei contributed equally to this work and should be considered as co-first authors.

List of Contents for Supplementary Materials

Scheme S1. Synthesis of PI-5 via a conventional two-step chemical imidization.....	3
Scheme S2. Proposed CTC formation within PI-2 (a) and PI-3 (b) films.....	3
Figure S1. ¹ H-NMR spectrum of <i>o</i>-M-NODA in CDCl ₃	3
Figure S2. ¹ H-NMR spectrum of <i>m</i>-M-NODA in DMSO- <i>d</i> ₆	4
Figure S3. ¹ H-NMR spectrum of <i>m</i>-3F-NODA in DMSO- <i>d</i> ₆	4
Figure S4. ¹³ C-NMR spectrum of <i>o</i>-M-NODA in DMSO- <i>d</i> ₆	5
Figure S5. ¹³ C-NMR spectrum of <i>m</i>-M-NODA in DMSO- <i>d</i> ₆	5
Figure S6. ¹³ C-NMR spectrum of <i>m</i>-3F-NODA in DMSO- <i>d</i> ₆	6
Figure S7. ¹ H-NMR spectrum of <i>o</i>-M-ODA in DMSO- <i>d</i> ₆	6
Figure S8. ¹ H-NMR spectrum of <i>m</i>-M-ODA in DMSO- <i>d</i> ₆	7
Figure S9. ¹ H-NMR spectrum of <i>m</i>-3F-ODA in DMSO- <i>d</i> ₆	7
Figure S10. ¹ H-NMR spectrum of ODA in DMSO- <i>d</i> ₆	8
Figure S11. ¹³ C-NMR spectrum of <i>o</i>-M-ODA in DMSO- <i>d</i> ₆	8
Figure S12. ¹³ C-NMR spectrum of <i>m</i>-M-ODA in DMSO- <i>d</i> ₆	9
Figure S13. ¹³ C-NMR spectrum of <i>m</i>-3F-ODA in DMSO- <i>d</i> ₆	9
Figure S14. ¹⁹ F-NMR spectra of (a) <i>m</i>-3F-NODA and (b) <i>m</i>-3F-ODA	10
Figure S15. FT-IR spectra of <i>o</i>-M-NODA , <i>m</i>-M-NODA and <i>m</i>-3F-NODA	11
Figure S16. FT-IR spectra of <i>o</i>-M-ODA , <i>m</i>-M-ODA and <i>m</i>-3F-ODA	11
Figure S17. GPC traces recorded in DMF for the resulting PIs.....	12
Figure S18. ¹ H-NMR spectra of the resulting polyimides in DMSO- <i>d</i> ₆	12
Figure S19. FT-IR spectra of the resulting polyimides.....	13
Figure S20. XRD patterns of the resulting polyimides.....	13



Scheme S1. Synthesis of PI-5 via a conventional two-step chemical imidization.



Scheme S2. Proposed CTC formation within PI-2 (a) and PI-3 (b) films.

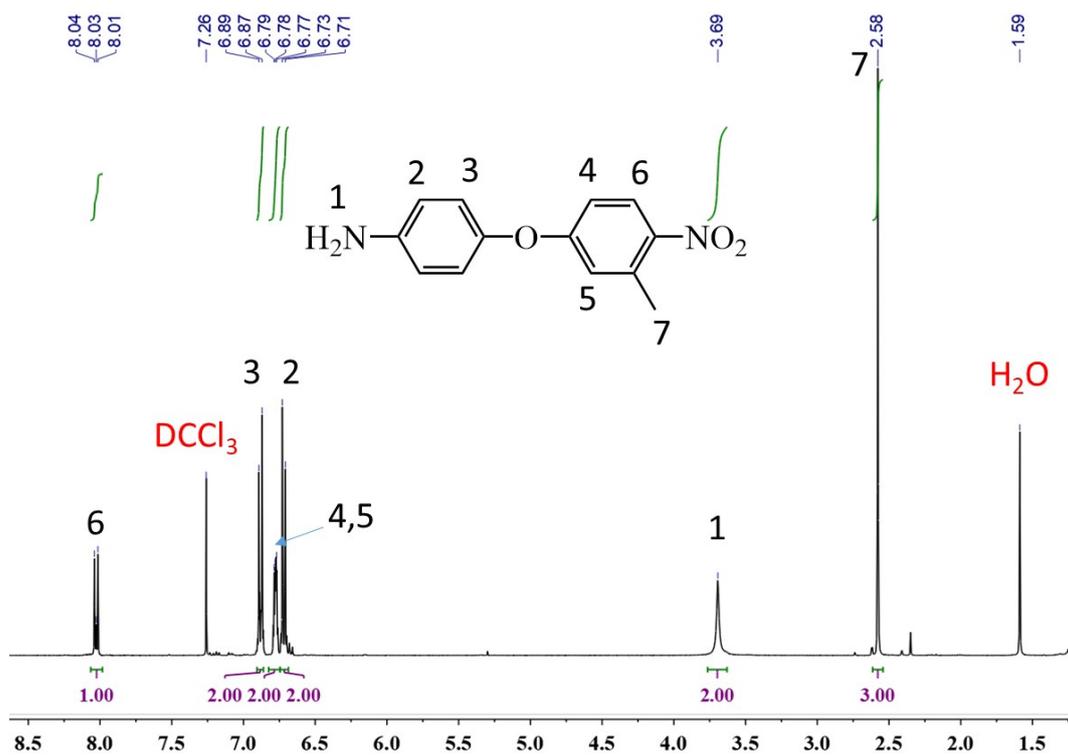


Figure S1. $^1\text{H-NMR}$ spectrum of *o*-M-NODA in CDCl_3 .

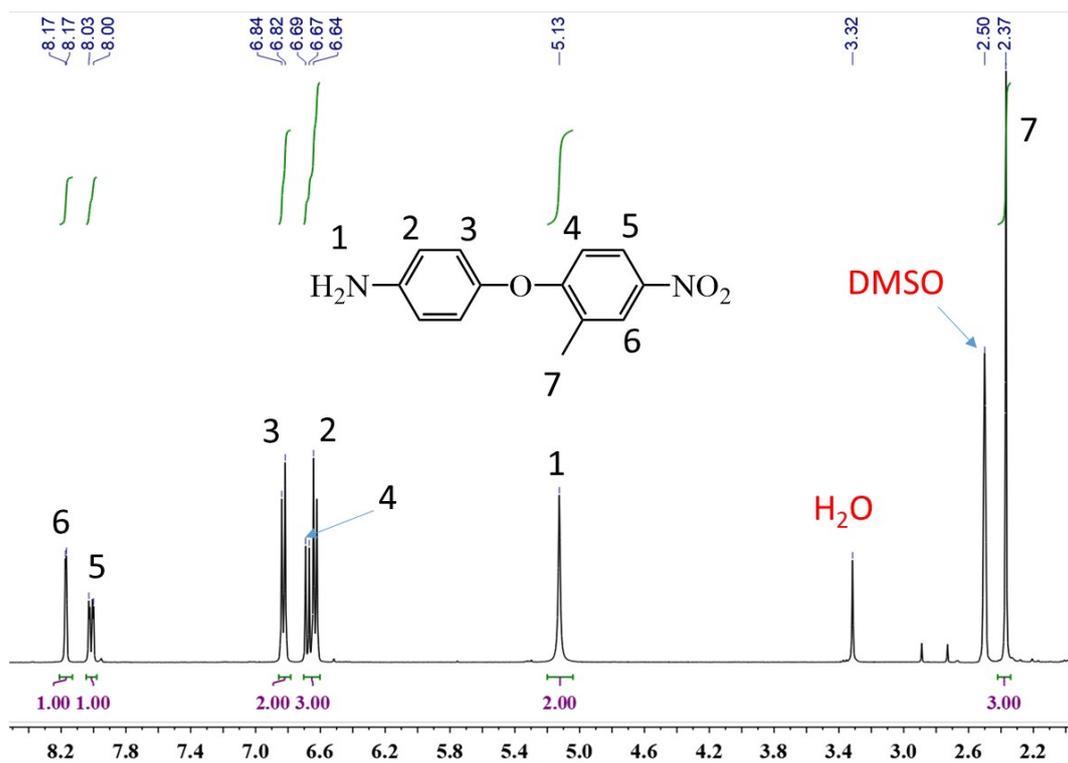


Figure S2. ¹H-NMR spectrum of *m*-M-NODA in DMSO-*d*₆.

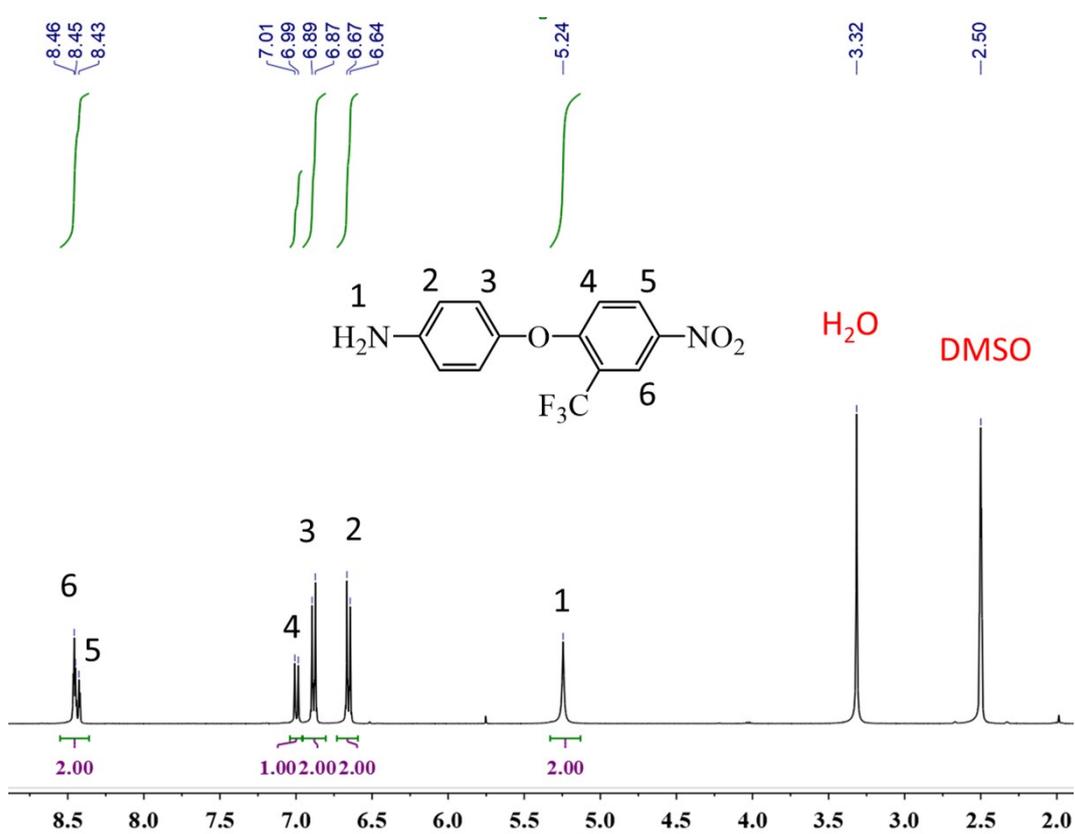


Figure S3. ¹H-NMR spectrum of *m*-3F-NODA in DMSO-*d*₆.

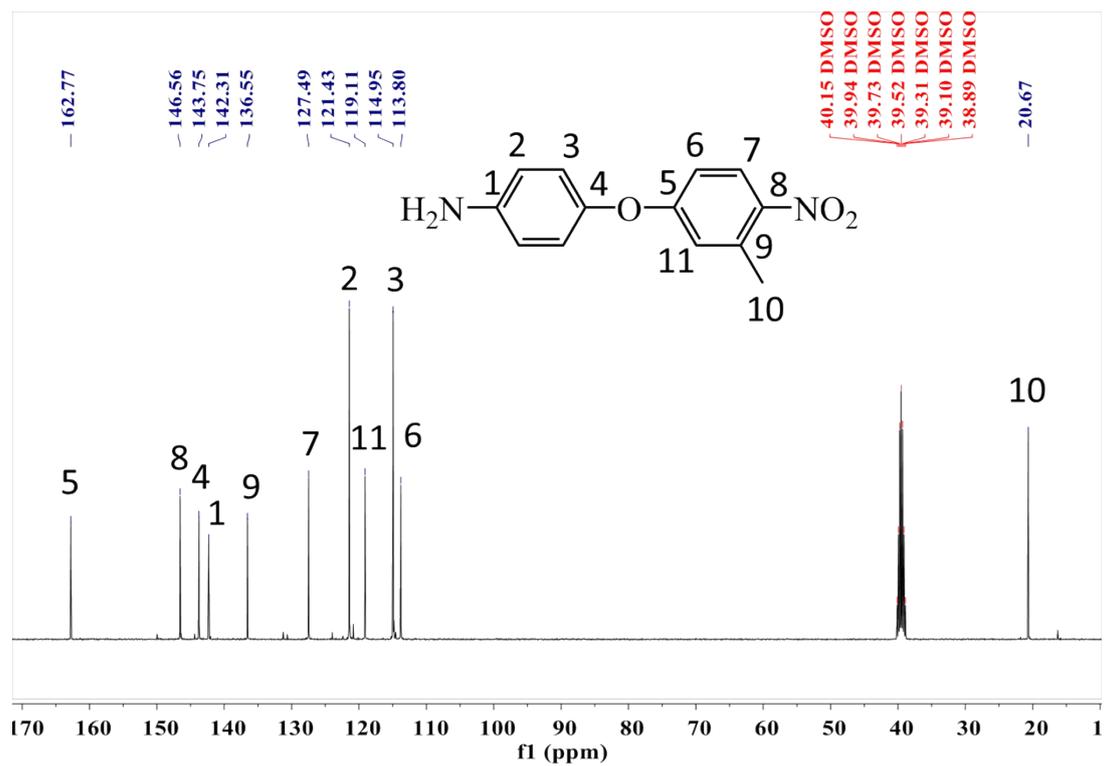


Figure S4. ^{13}C -NMR spectrum of *o*-M-NODA in $\text{DMSO-}d_6$.

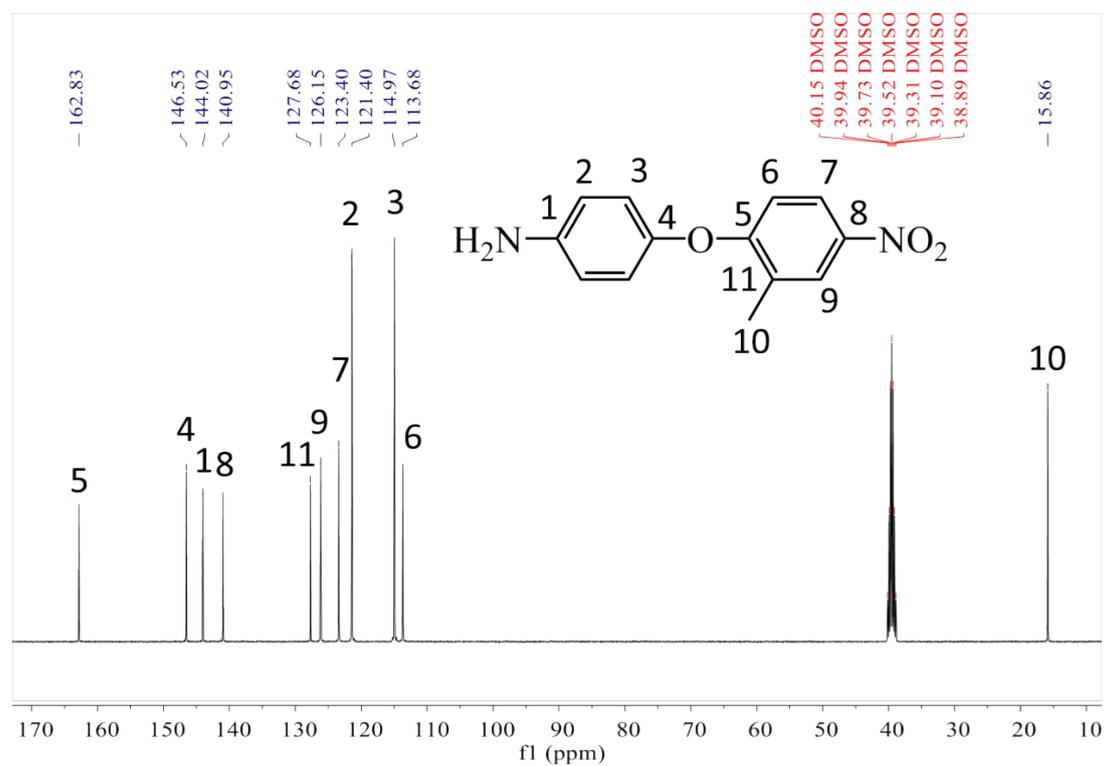


Figure S5. ^{13}C -NMR spectrum of *m*-M-NODA in $\text{DMSO-}d_6$.

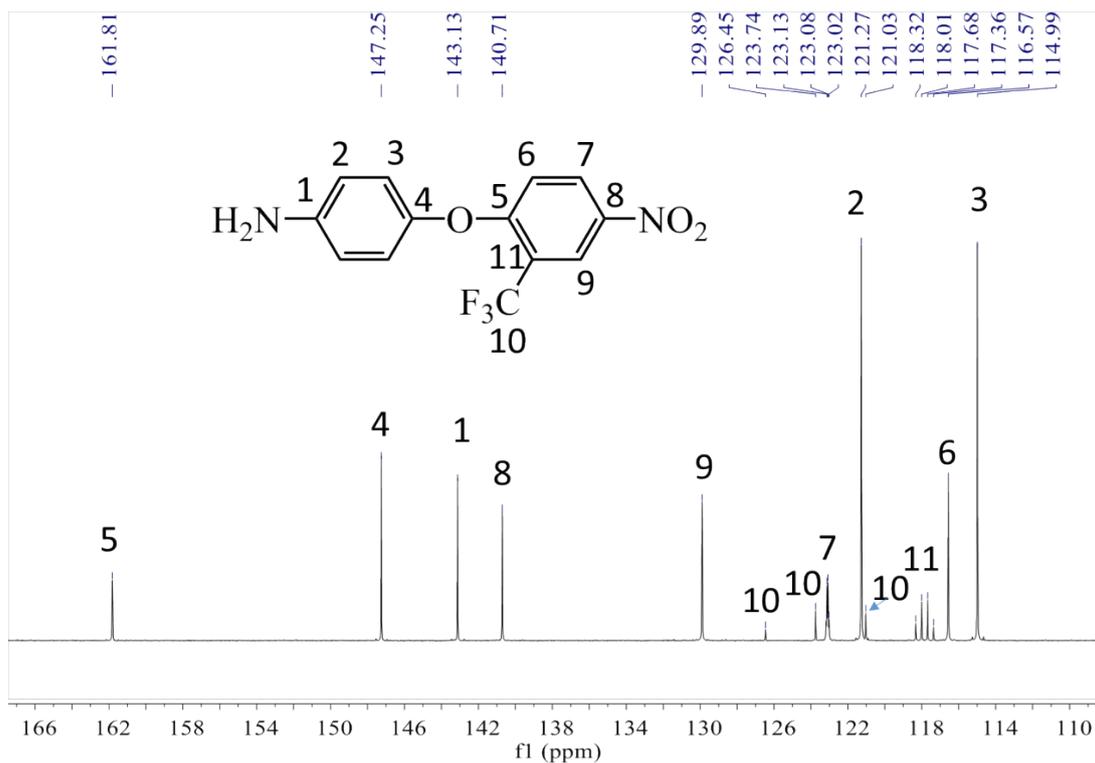


Figure S6. ¹³C-NMR spectrum of *m*-3F-NODA in DMSO-*d*₆.

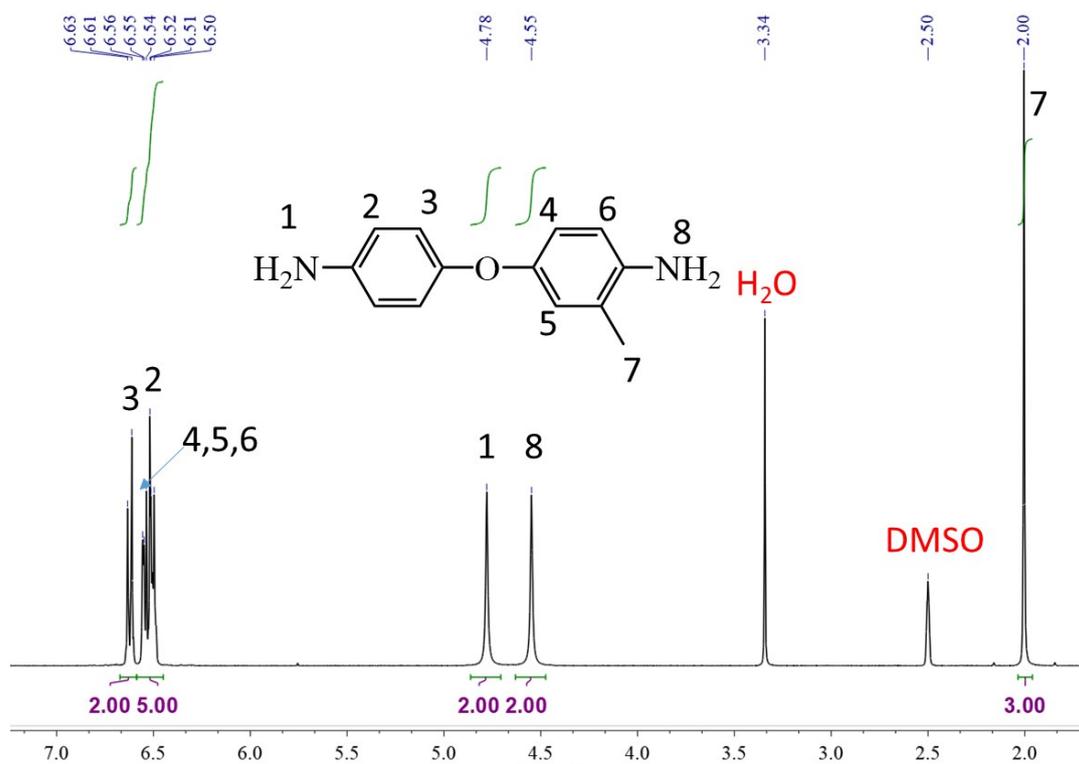


Figure S7. ¹H-NMR spectrum of *o*-M-ODA in DMSO-*d*₆.

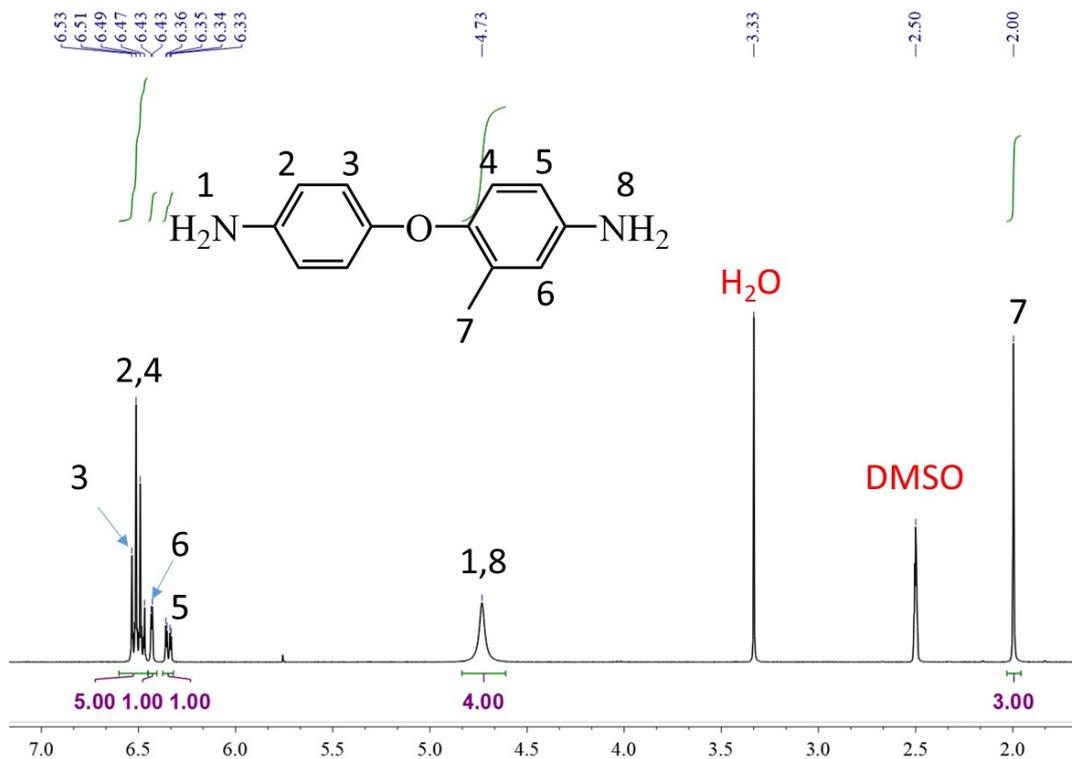


Figure S8. ¹H-NMR spectrum of *m*-M-ODA in DMSO-*d*₆.

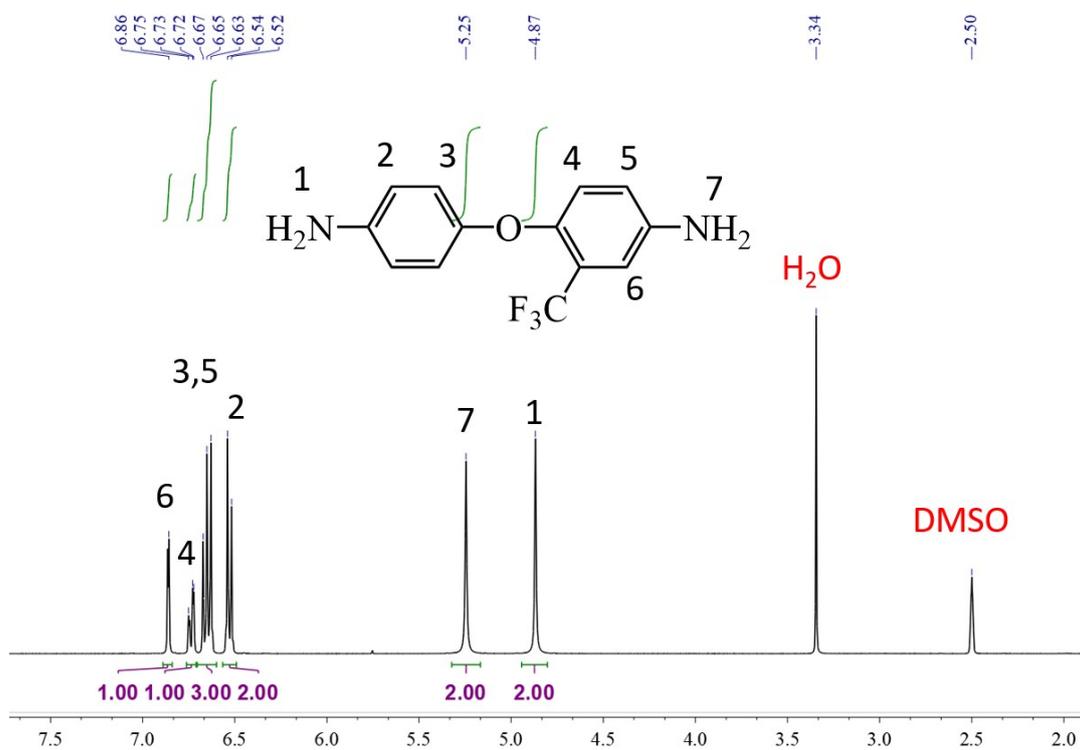


Figure S9. ¹H-NMR spectrum of *m*-3F-ODA in DMSO-*d*₆.

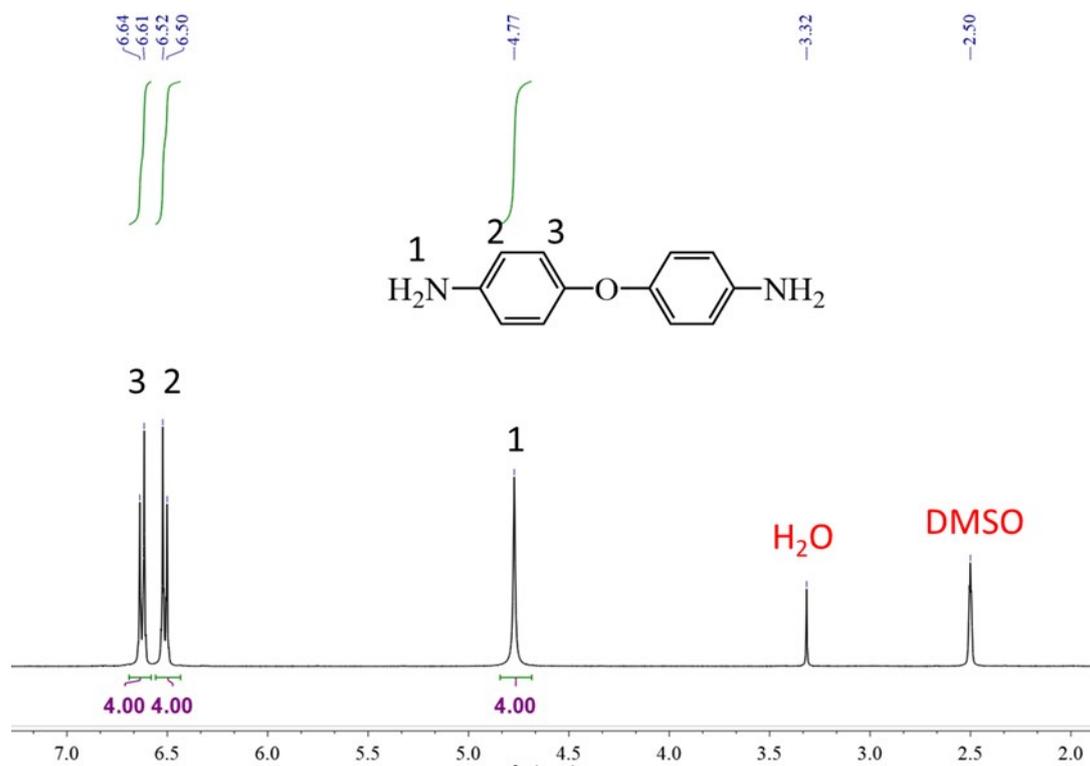


Figure S10. $^1\text{H-NMR}$ spectrum of ODA in $\text{DMSO-}d_6$.

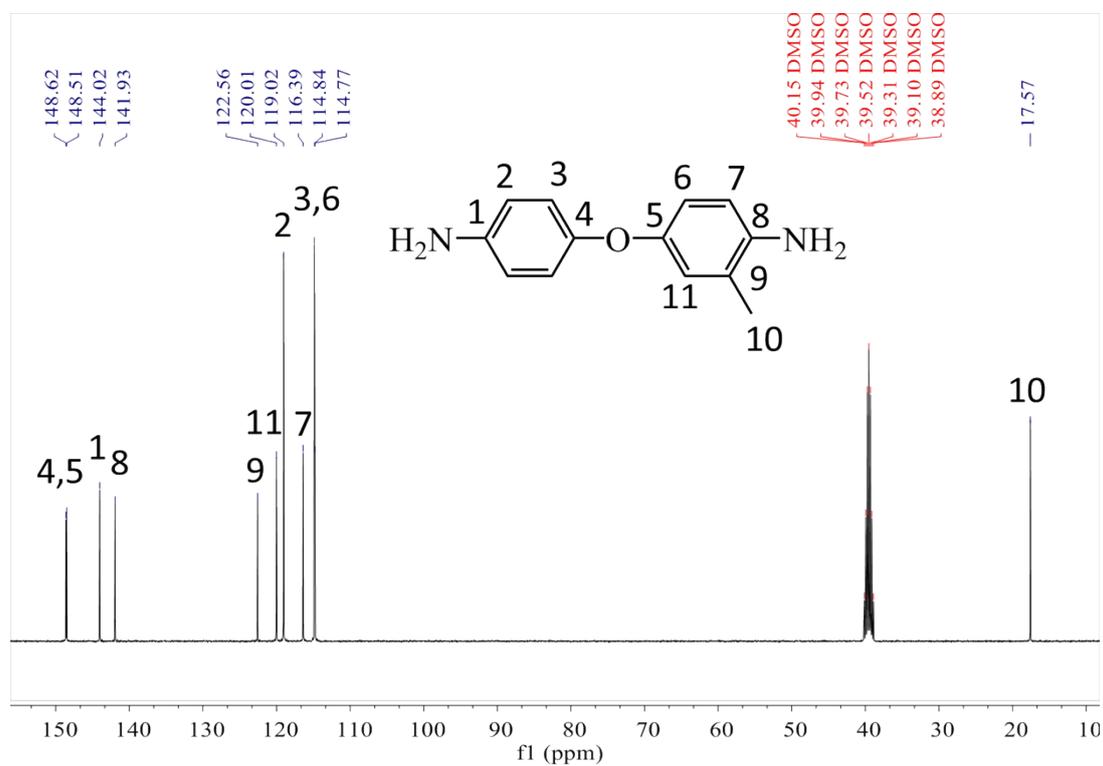


Figure S11. $^{13}\text{C-NMR}$ spectrum of *o*-M-ODA in $\text{DMSO-}d_6$.

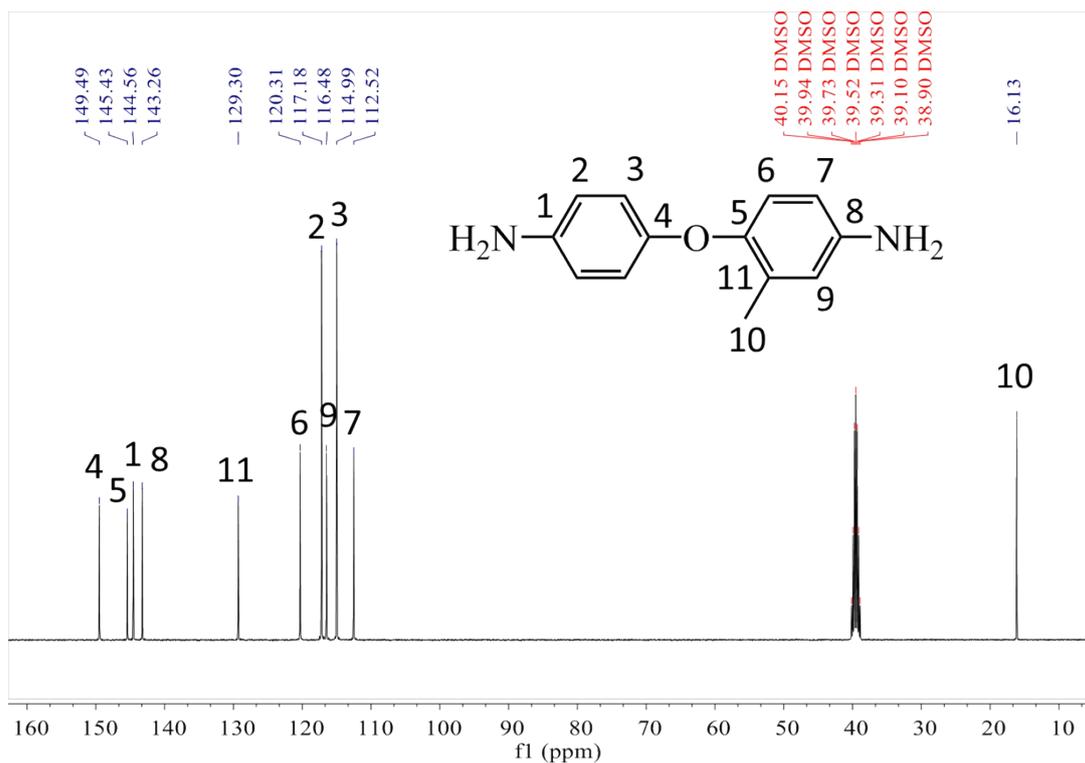


Figure S12. ^{13}C -NMR spectrum of *m*-M-ODA in $\text{DMSO-}d_6$.

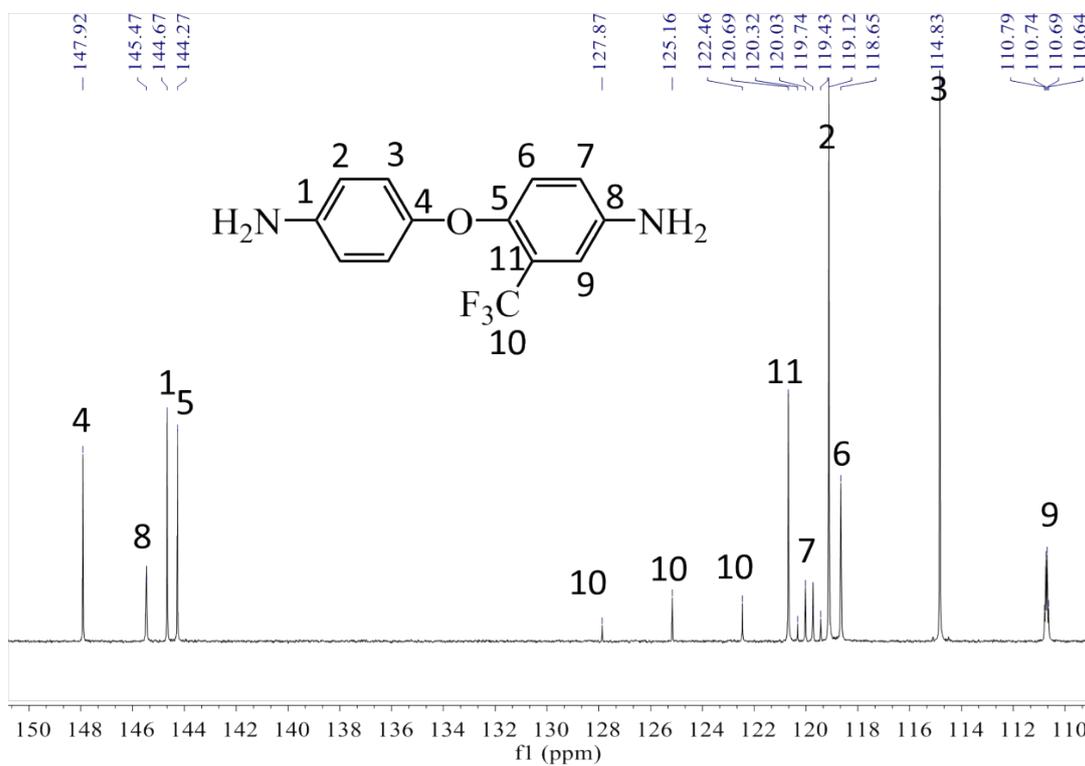


Figure S13. ^{13}C -NMR spectrum of *m*-3F-ODA in $\text{DMSO-}d_6$.

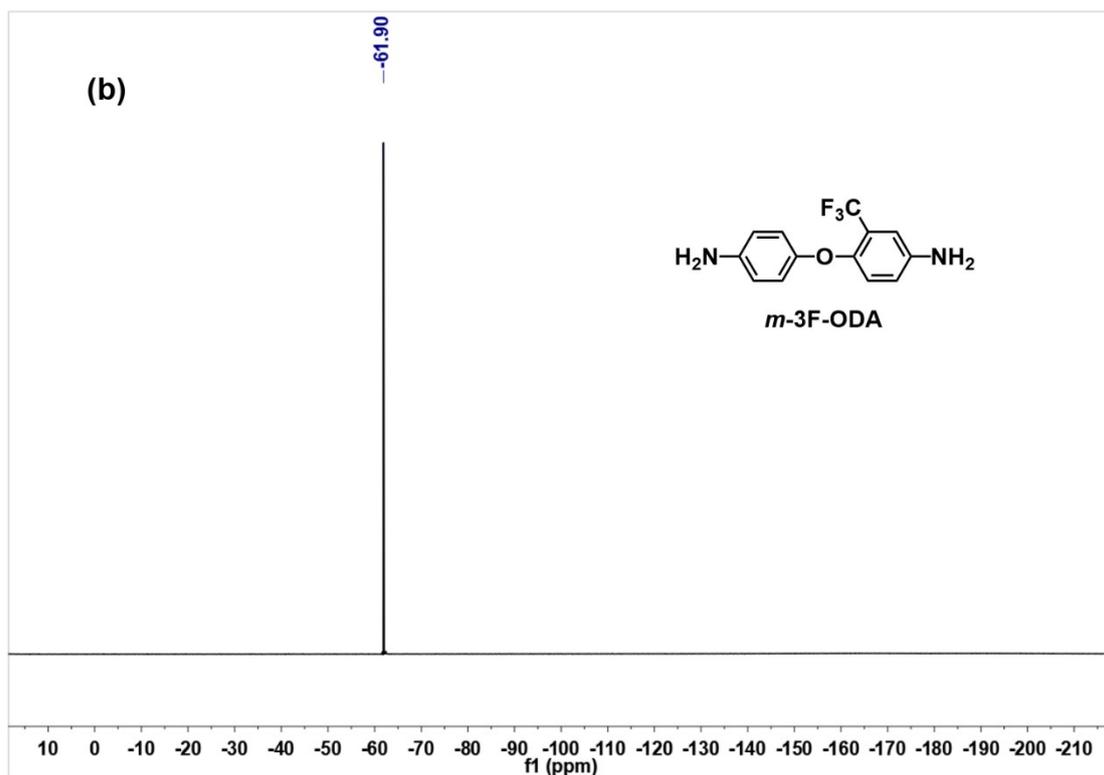
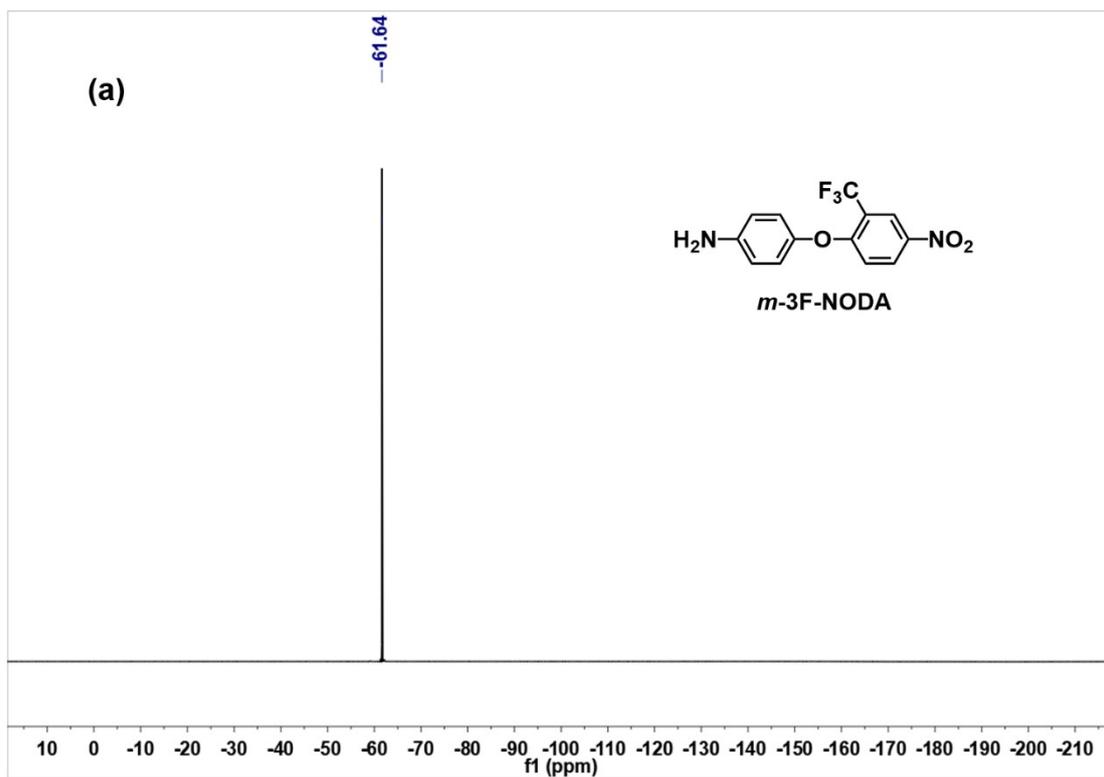


Figure S14. ^{19}F -NMR spectra of (a) *m*-3F-NODA and (b) *m*-3F-ODA.

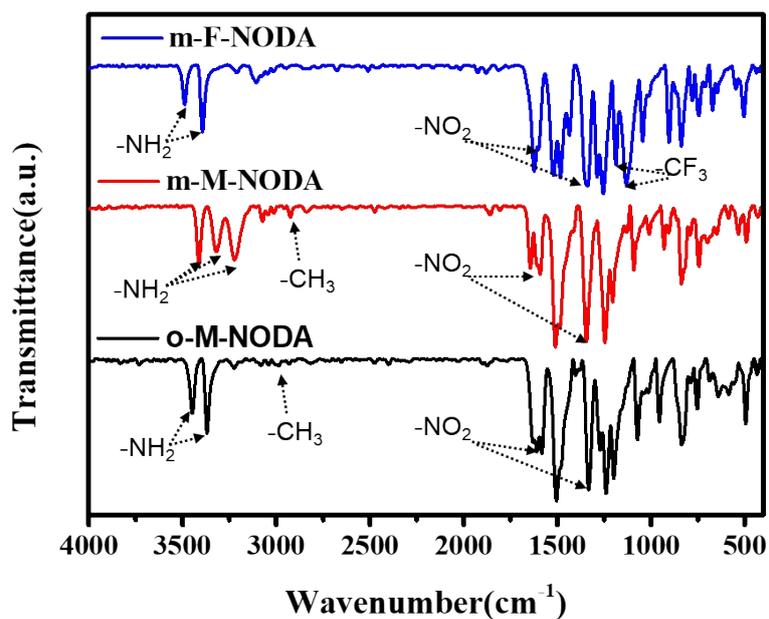


Figure S15. FT-IR spectra of *o*-M-NODA, *m*-M-NODA and *m*-3F-NODA.

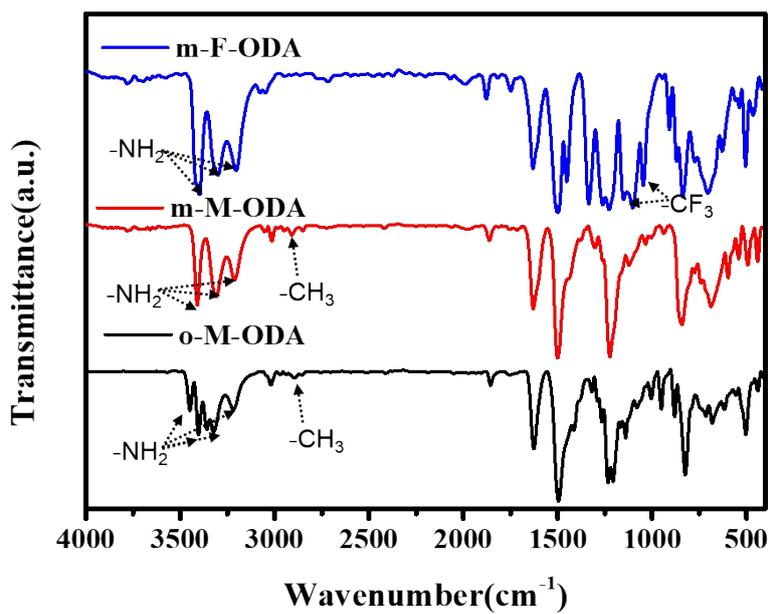


Figure S16. FT-IR spectra of *o*-M-ODA, *m*-M-ODA and *m*-3F-ODA.

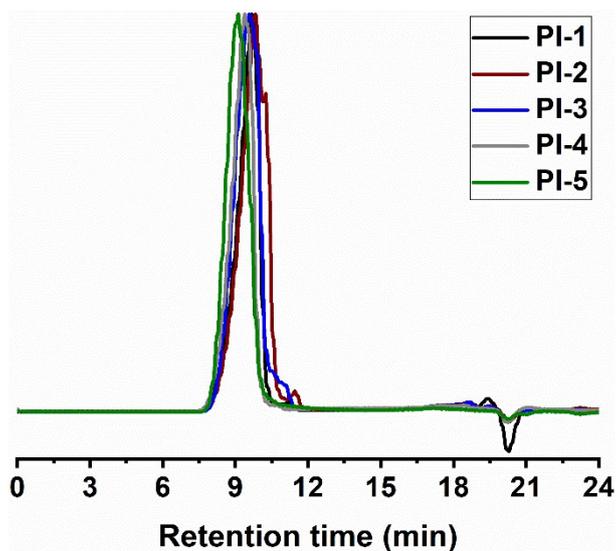


Figure S17. GPC traces recorded in DMF for the resulting PIs

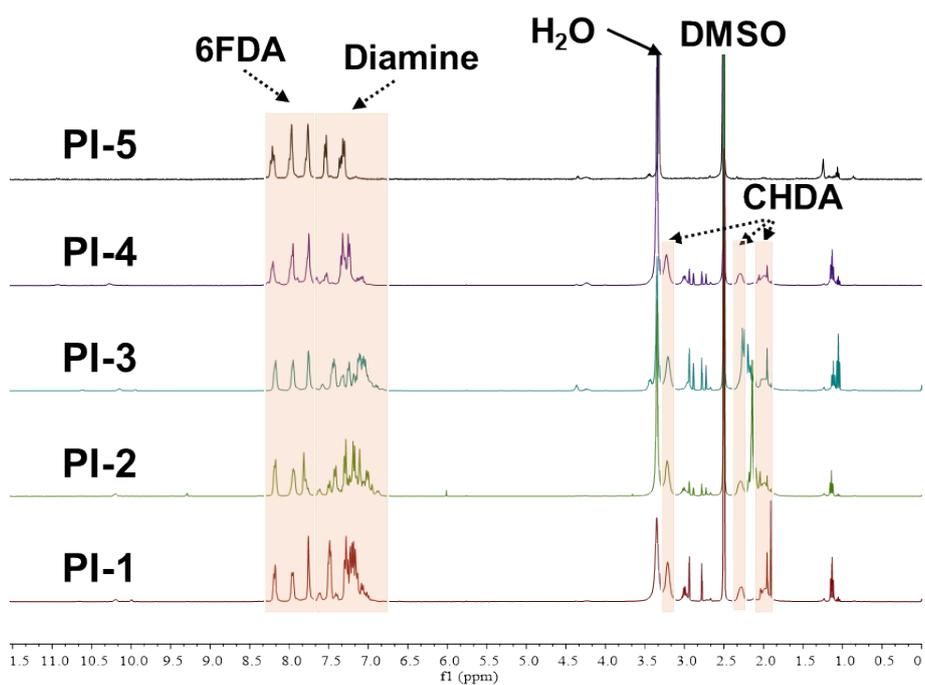


Figure S18. $^1\text{H-NMR}$ spectra of the resulting polyimides in $\text{DMSO-}d_6$.

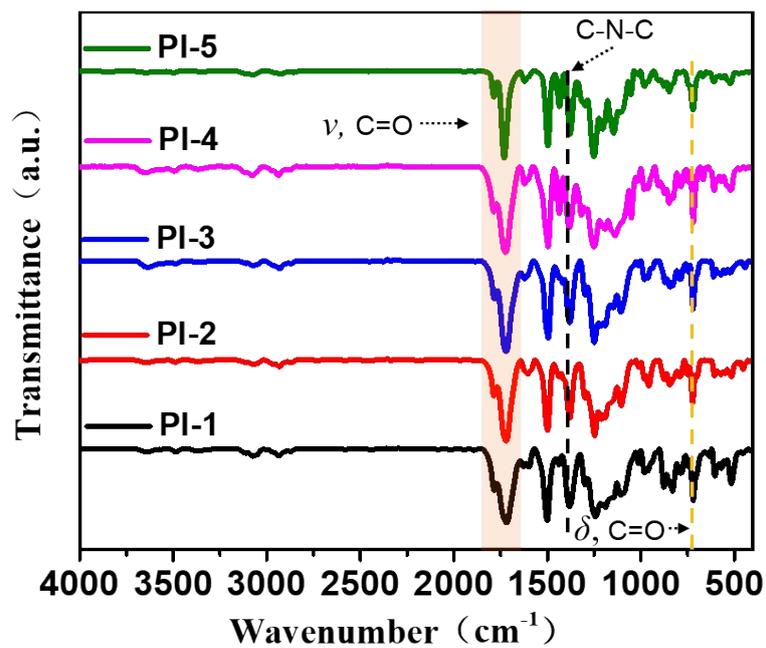


Figure S19. FT-IR spectra of the resulting polyimides.

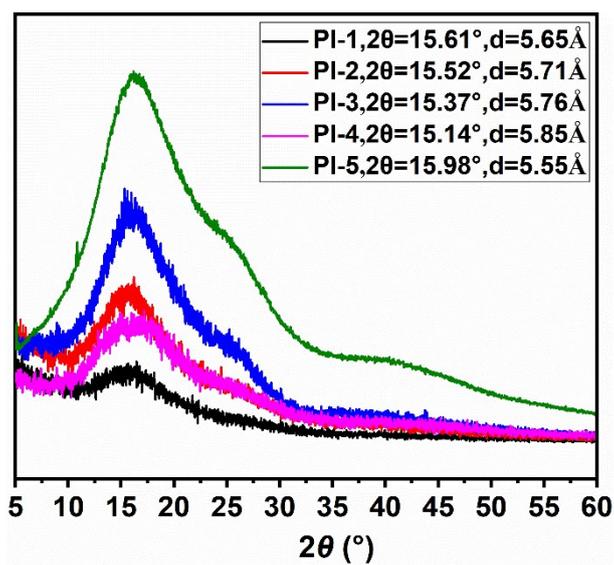


Figure S20. XRD patterns of the resulting polyimides.