

Supplementary Information for
Toughened aromatic poly-(decylene terephthalate) copolyesters
with two renewable eugenol-based components *via* a
random copolymerization method

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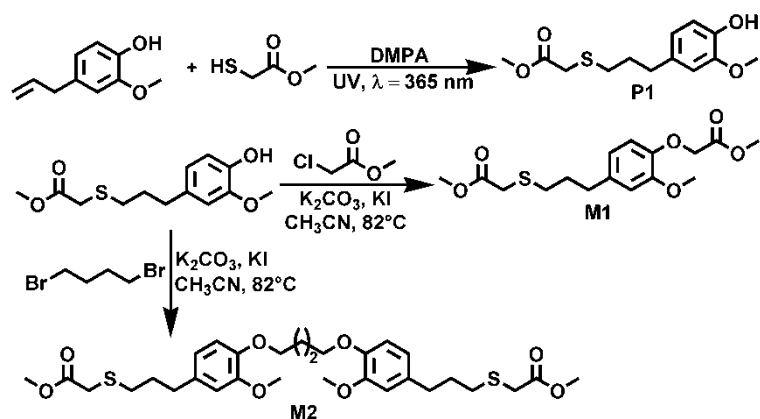
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Scheme S1 Synthetic routes for the preparation of precursor **P1** and tougheners **M1**, **M2** via a thiol-ene click and nucleophilic substitutions.

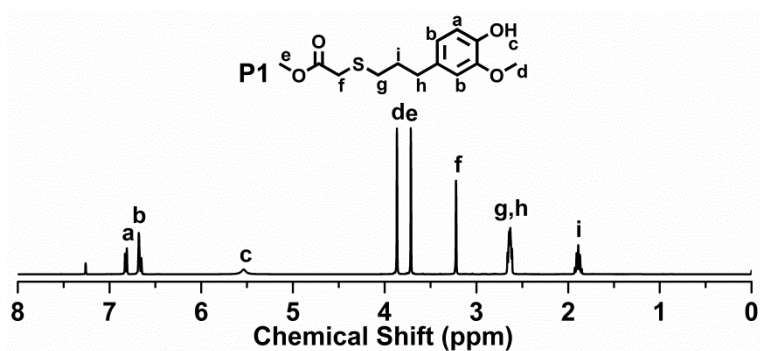


Fig. S1 ^1H NMR spectrum of **P1**.

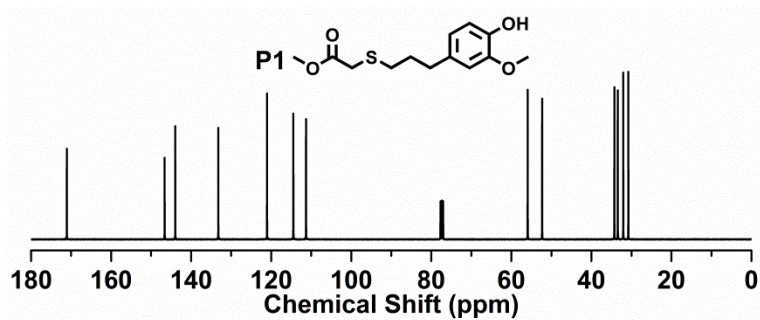


Fig. S2 ^{13}C NMR spectrum of **P1**.

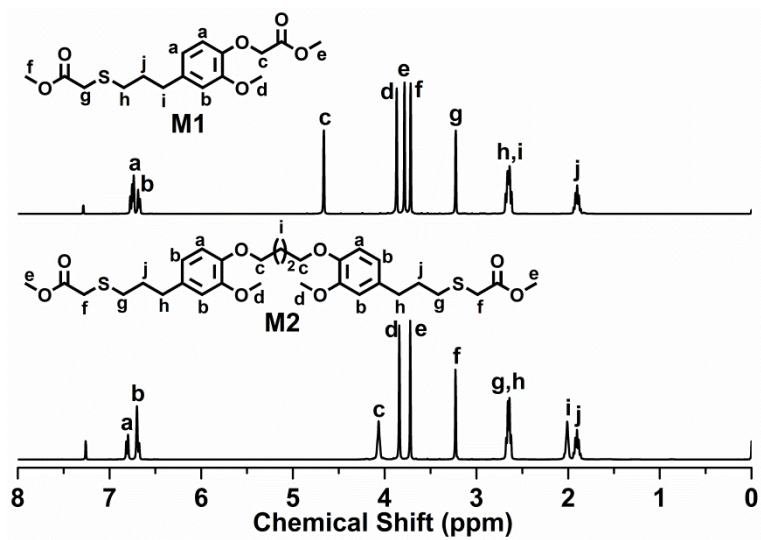


Fig. S3 ^1H NMR spectra of M1 and M2.

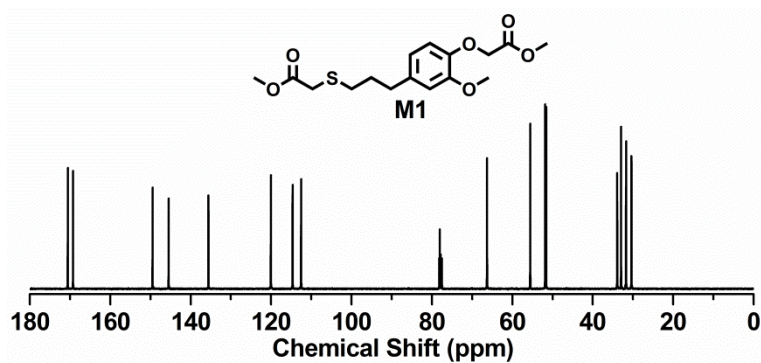


Fig. S4 ^{13}C NMR spectrum of M1.

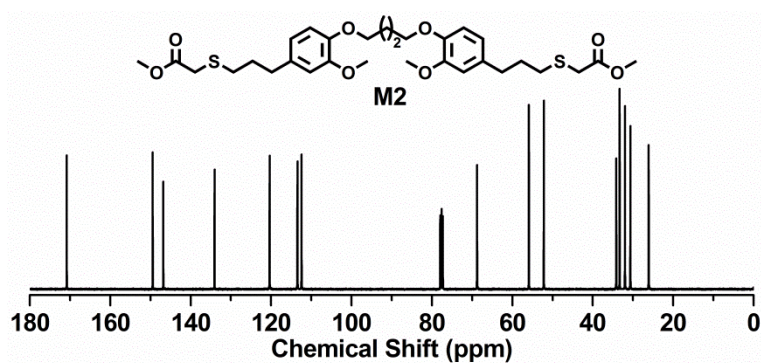


Fig. S5 ^{13}C NMR spectrum of M2.

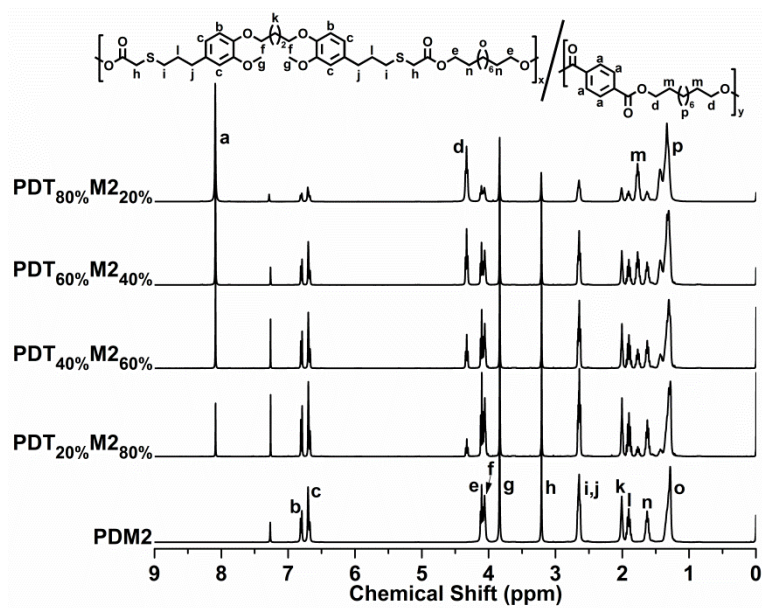


Fig. S6 ^1H NMR spectra of $\text{PDT}_{1-x}\text{M2}_x$ copolyesters.

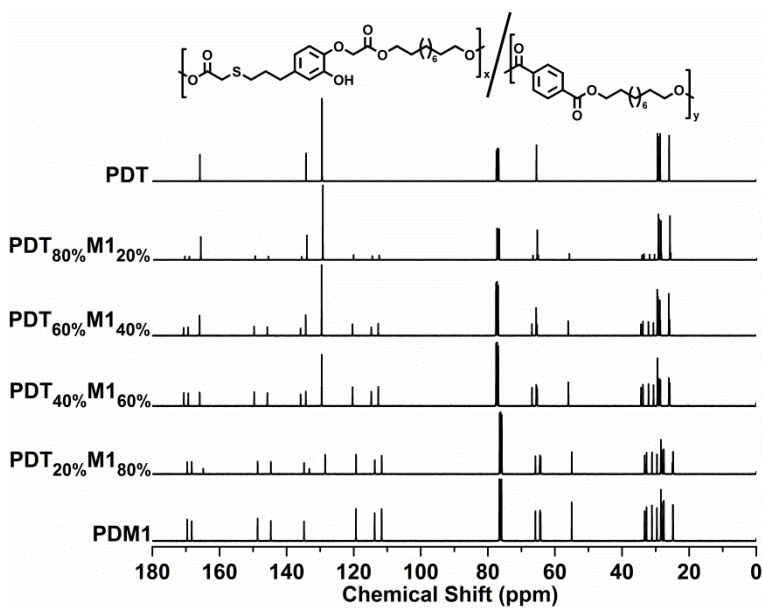


Fig. S7 ^{13}C NMR spectra of $\text{PDT}_{1-x}\text{M1}_x$ copolyesters.

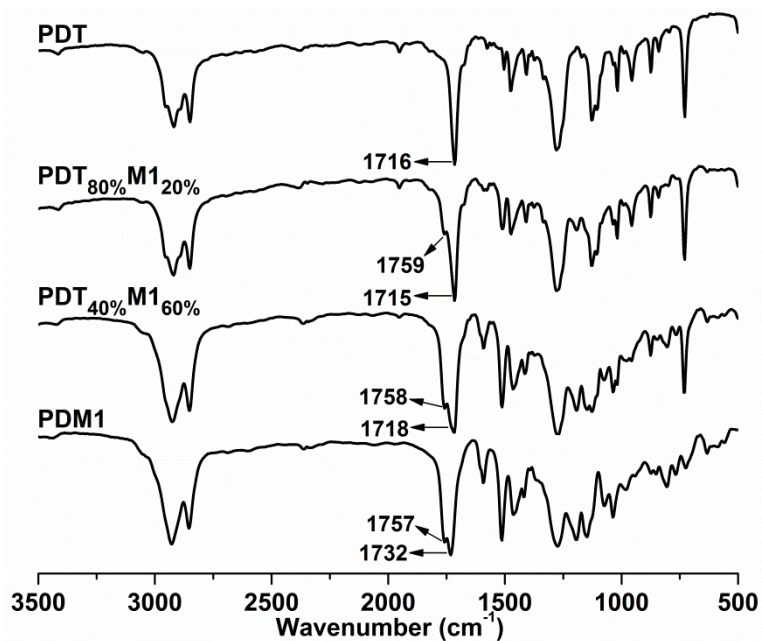


Fig. S8 FTIR spectra of PDT, PDM1 homopolyesters and PDT_{80%}M1_{20%},

PDT_{40%}M1_{60%} copolyesters.

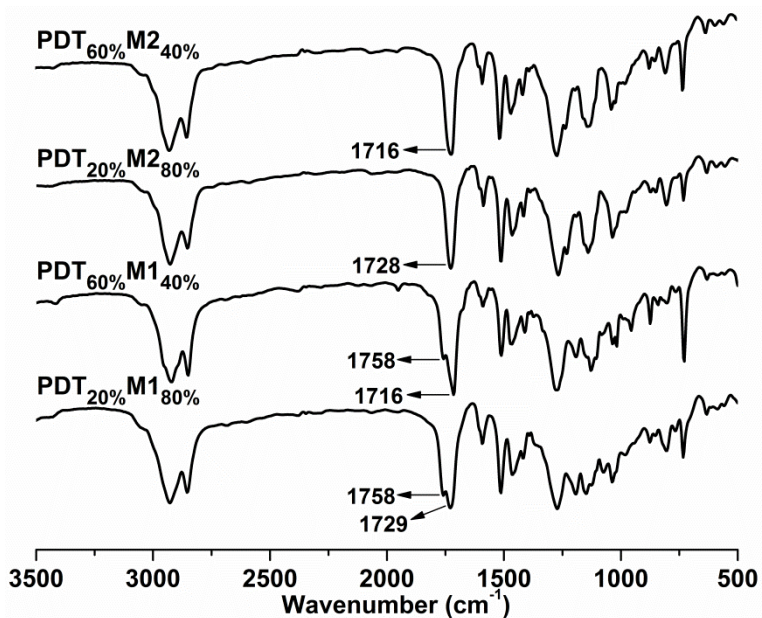


Fig. S9 FTIR spectra of PDT_{60%}M1_{40%}, PDT_{20%}M1_{80%}, PDT_{60%}M2_{40%}

and PDT_{20%}M2_{80%} copolyesters.

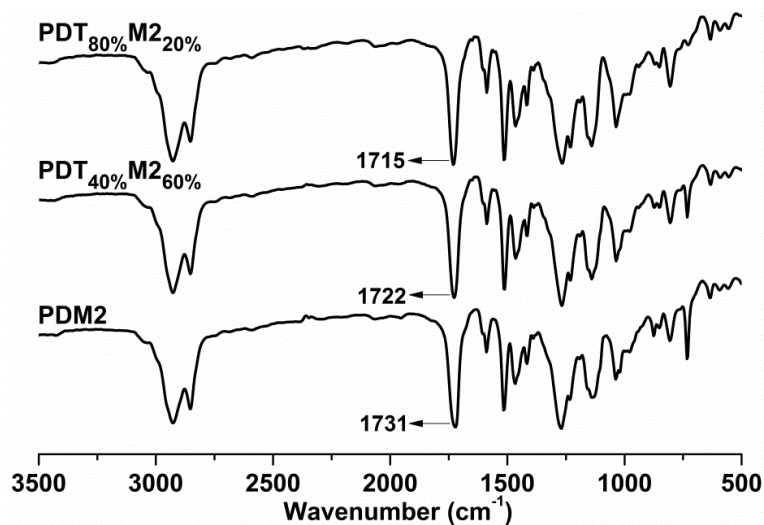


Fig. S10 FTIR spectra of PDM2 homopolyester and $\text{PDT}_{80\%}\text{M2}_{20\%}$, $\text{PDT}_{40\%}\text{M2}_{60\%}$ copolyesters.

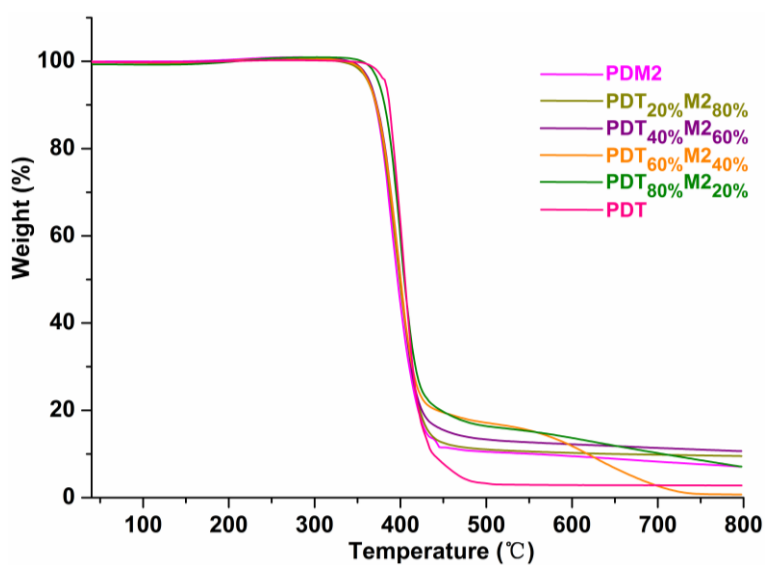


Fig. S11 TGA curves of $\text{PDT}_{1-x}\text{M2}_x$ copolyesters recorded from 25-800 $^{\circ}\text{C}$ at a heating rate of 10 $^{\circ}\text{C min}^{-1}$ under a nitrogen atmosphere.

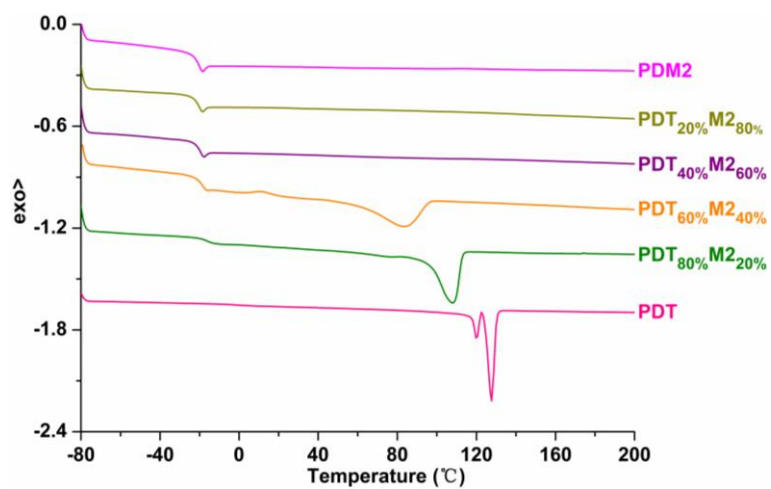


Fig. S12 Second heating DSC curves of $\text{PDT}_{1-x}\text{M2}_x$ copolyesters coming directly from synthesis

carried out from $-80\text{--}200\text{ }^\circ\text{C}$ at a heating/cooling rate of $10\text{ }^\circ\text{C min}^{-1}$.

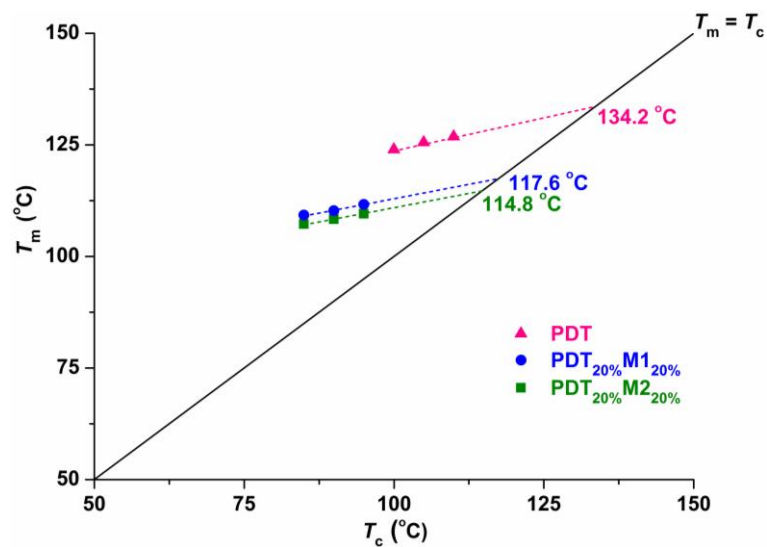


Fig. S13 Hoffman-Weeks plots for isothermally crystallized samples of **PDT** homopolymer

and $\text{PDT}_{80\%}\text{M1}_{20\%}$, $\text{PDT}_{80\%}\text{M2}_{20\%}$ copolyesters.

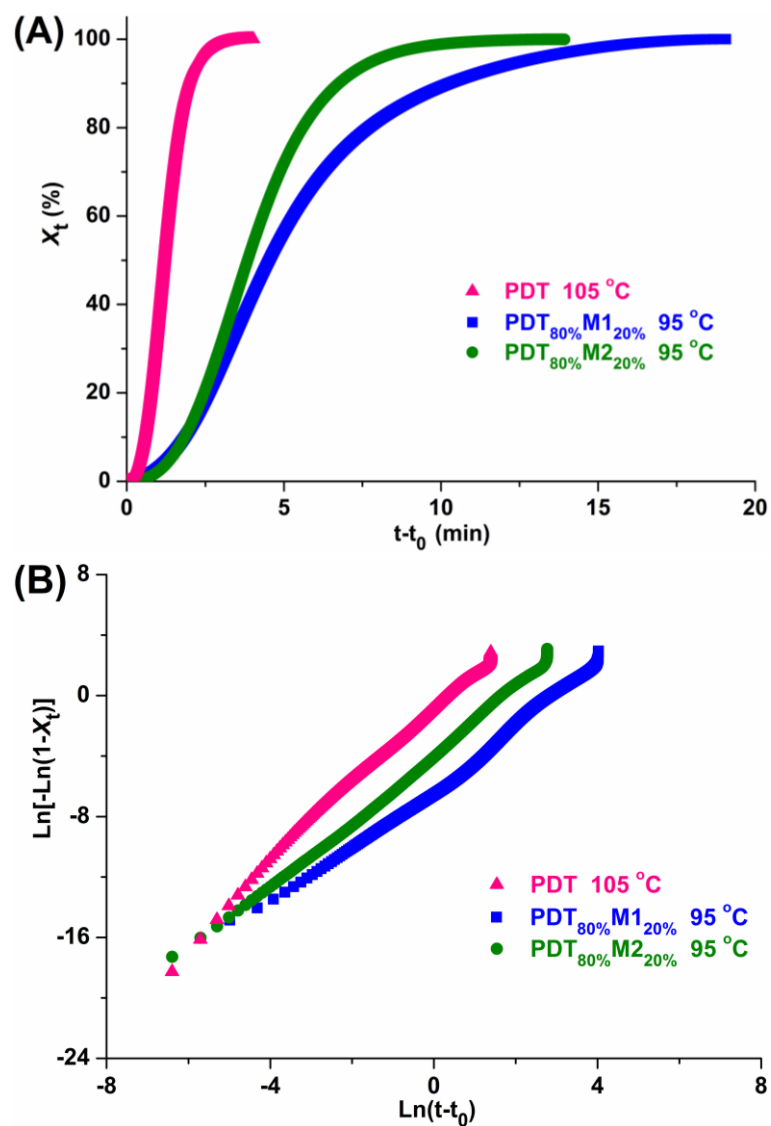


Fig. S14 Isothermal crystallization of **PDT**, **PDT_{80%}M1_{20%}** and **PDT_{80%}M2_{20%}** at the indicated temperatures. Evolution of the relative crystallinity versus time plot (A) and Avrami plot (B).

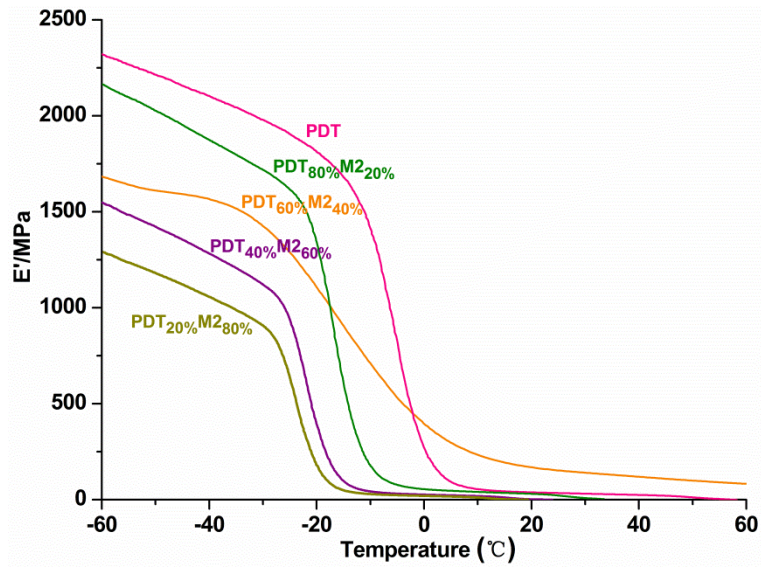


Fig. S15 Storage modulus as a function of temperature for $\text{PDT}_{1-x}\text{M}_2_x$ copolyesters.

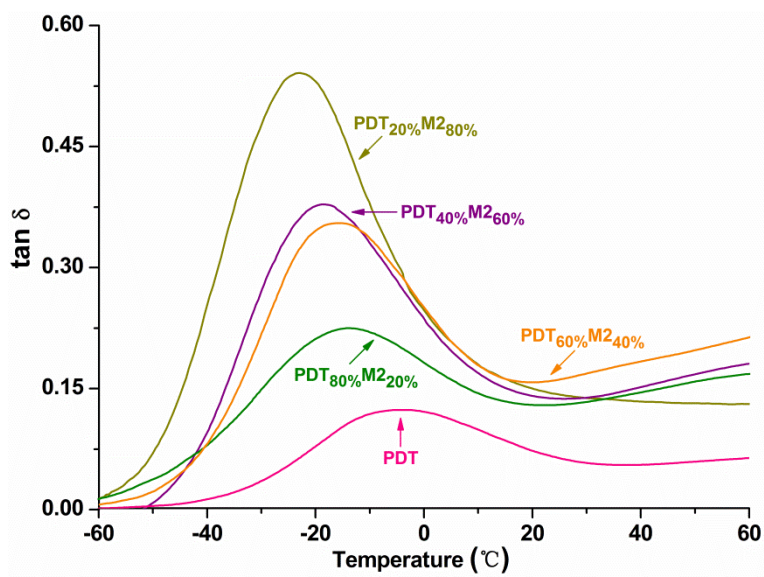


Fig. S16 $\tan \delta$ as a function of temperature for $\text{PDT}_{1-x}\text{M}_2_x$ copolyesters.