

## Supporting Information

### **Highly *cis*-1,4 selective copolymerization of dienes with polar 2-(3-methylidenepent-4-en-1-yl)pyridine: An approach to recyclable elastomers**

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Figure S3. <sup>1</sup>H-<sup>1</sup>H COSY (CDCl<sub>3</sub>) spectrum of MPEP monomer.

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Figure S8. <sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectra of P(MPEP-*co*-BD)s (Table 1, entries 7-8).

Figure S9. DSC curves of the P(MPEP-*co*-IP)s (Table 1, entries 1-5).

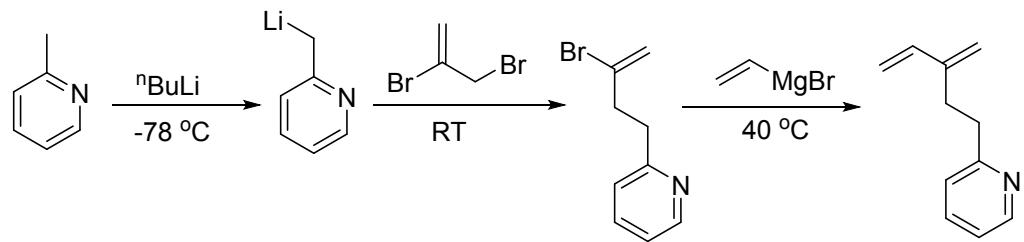
Figure S10. DSC curves of the P(MPEP-*co*-BD)s (Table 1, entries 7-8).

Figure S11. GPC curves of the P(MPEP-*co*-IP)s (Table 1, entries 1-5).

Figure S12. GPC curves of the P(MPEP-*co*-BD)s (Table 1, entries 7-8).

Figure S13. SAXS pattern of P(MPEP-*co*-IP)I.

Figure S14. DMA curves of P(MPEP-*co*-IP)I.



Scheme S1. The synthesis of polar monomer 2-(3-methylidenepent-4-en-1-yl)pyridine (MPEP).

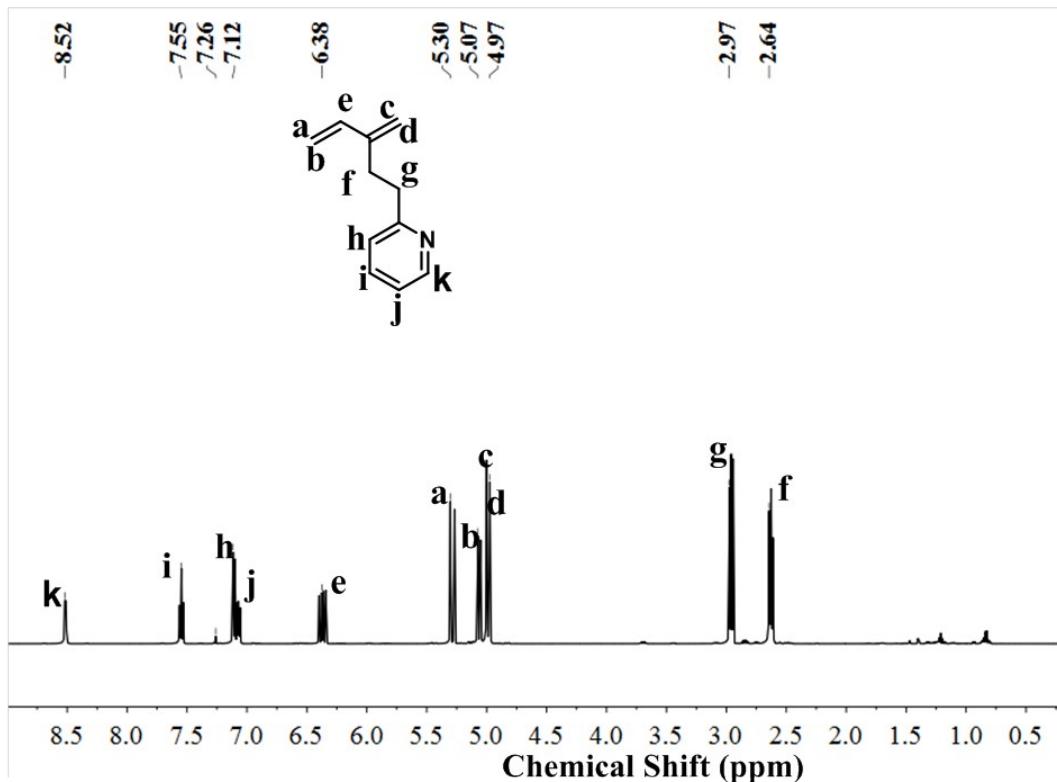


Figure S1.  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) spectrum of MPEP monomer.

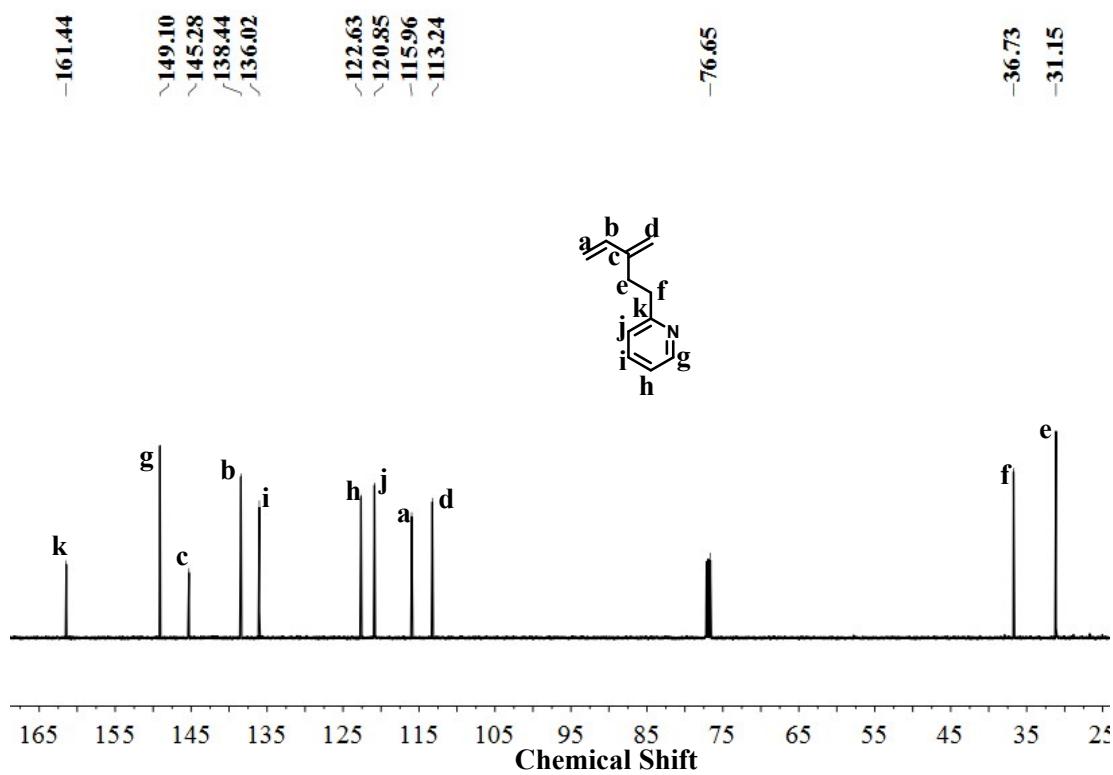


Figure S2.  $^{13}\text{C}$  NMR (125 MHz,  $\text{CDCl}_3$ ) spectrum of MPEP monomer.

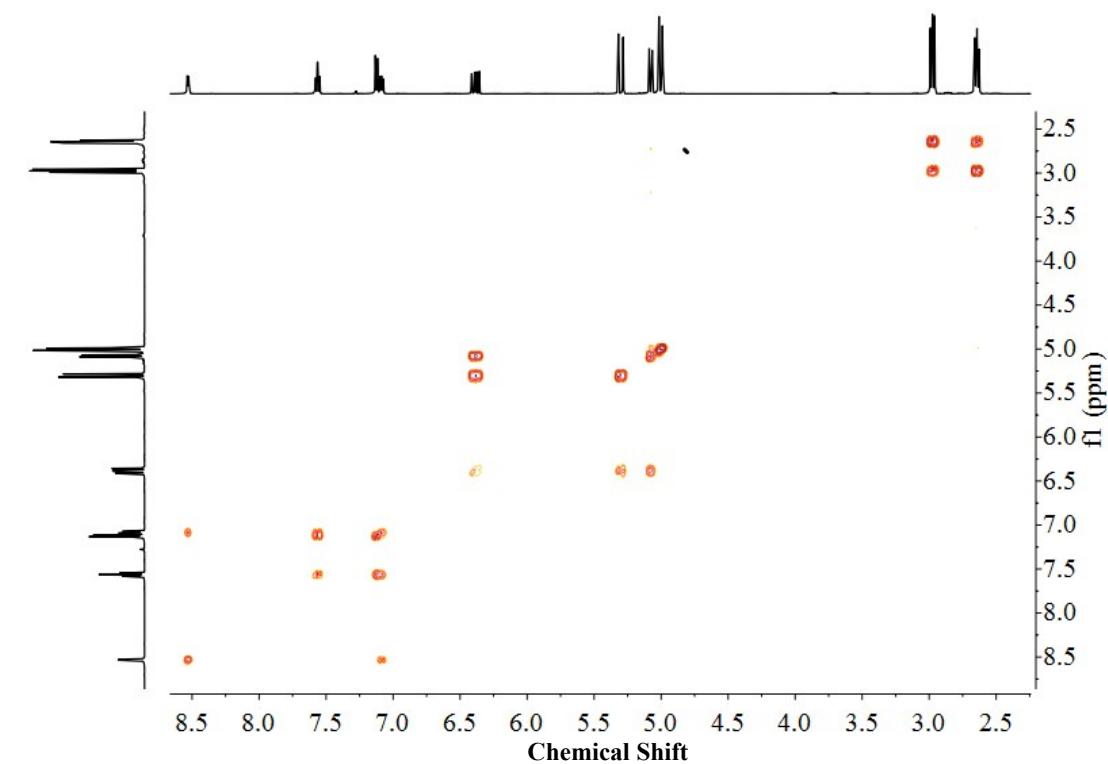


Figure S3.  $^1\text{H}$ - $^1\text{H}$  COSY ( $\text{CDCl}_3$ ) spectrum of MPEP monomer.

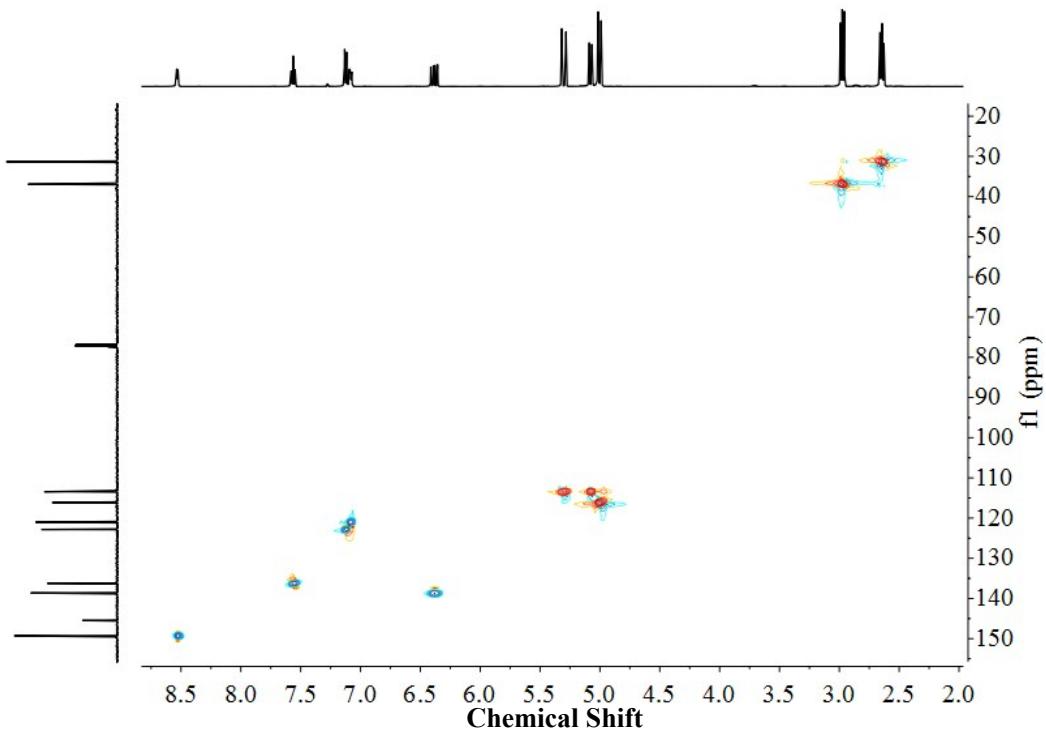


Figure S4.  $^{13}\text{C}$ - $^1\text{H}$  HSQC ( $\text{CDCl}_3$ ) spectrum of MPEP monomer.

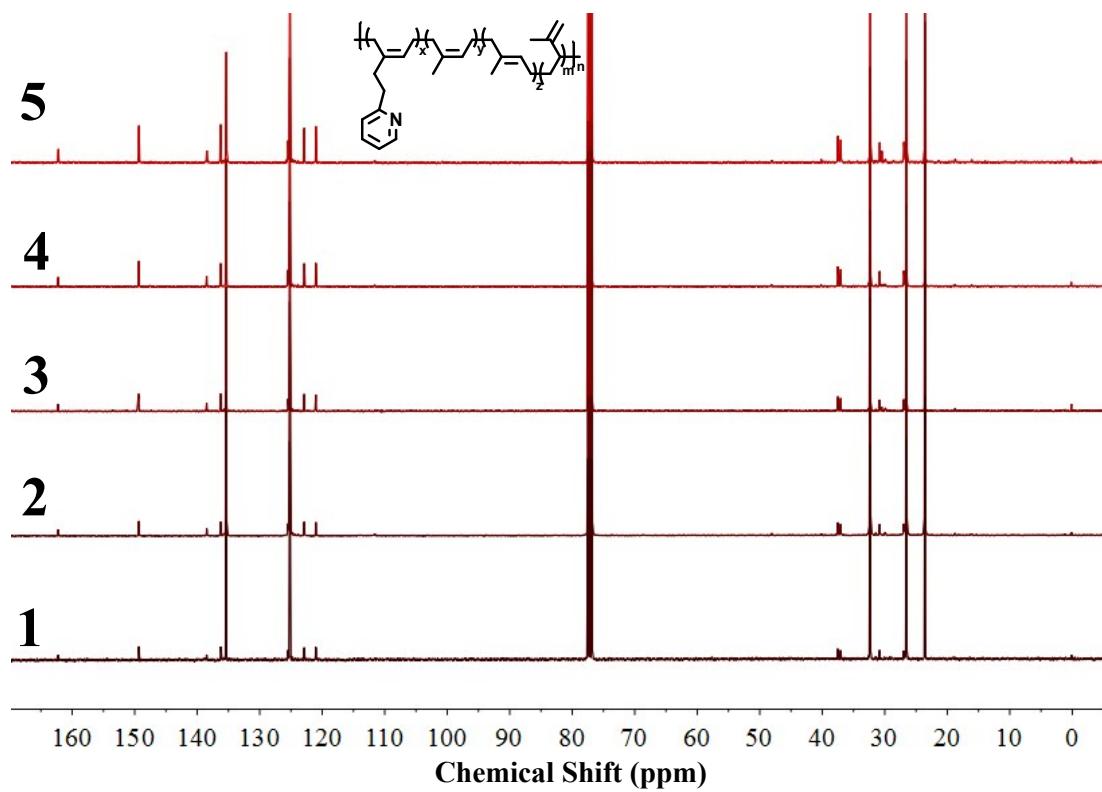


Figure S5.  $^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) spectra of P(MPEP-*co*-IP)s (Table 1, entries 1-5).

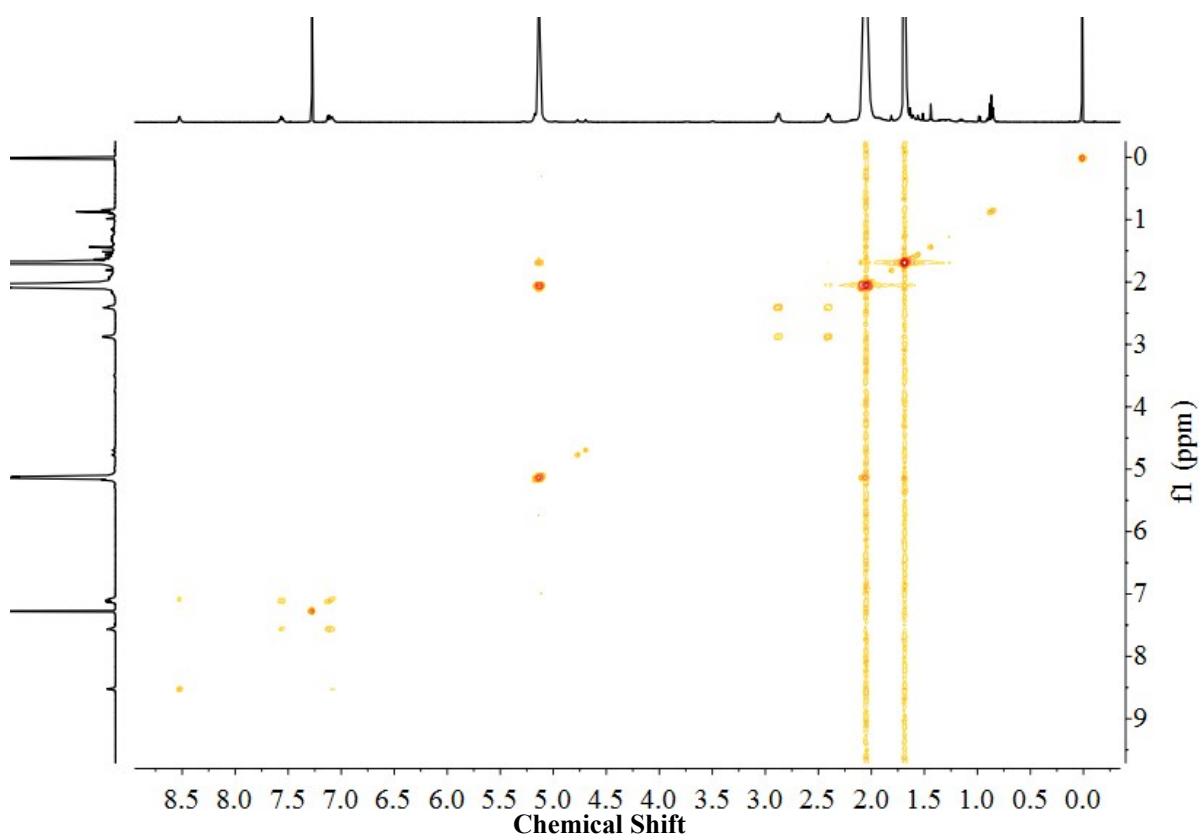


Figure S6.  $^1\text{H}$ - $^1\text{H}$  COSY ( $\text{CDCl}_3$ ) spectrum of P(MPEP-*co*-IP) (Table 1, entry 2).

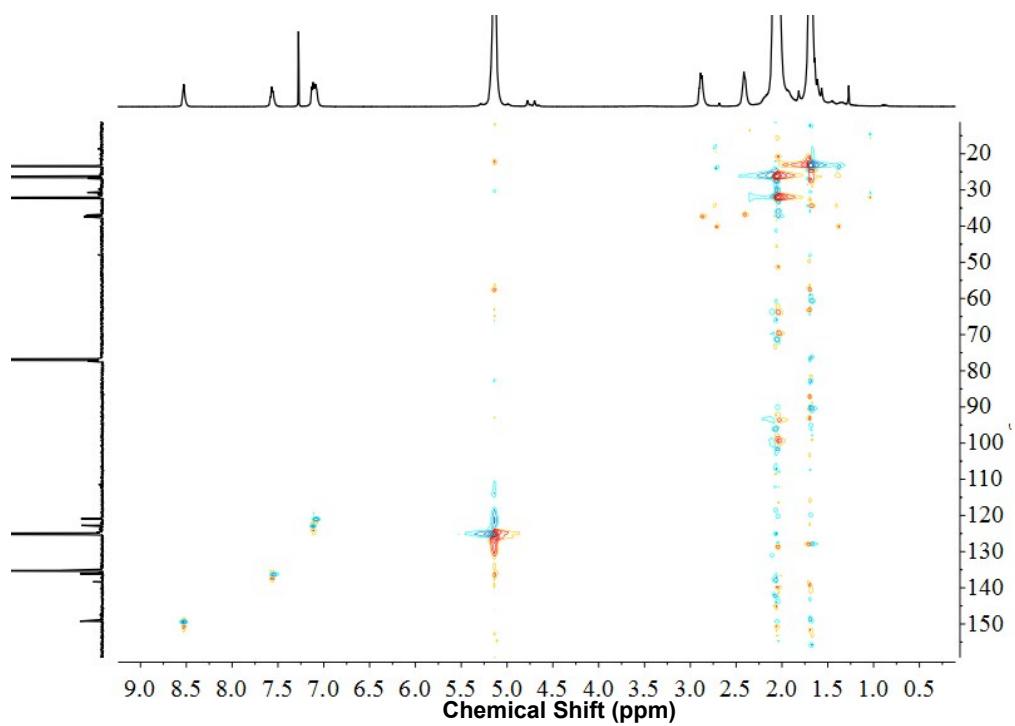


Figure S7.  $^{13}\text{C}$ - $^1\text{H}$  HSQC ( $\text{CDCl}_3$ ) spectrum of P(MPEP-*co*-IP) (Table 1, entry 2).

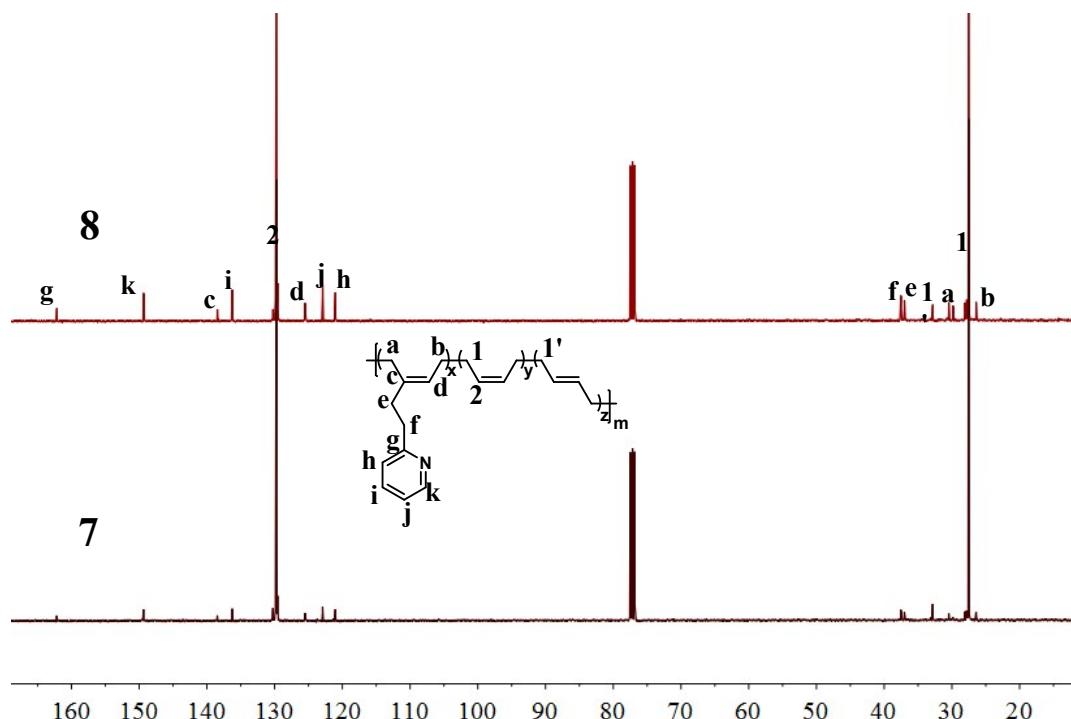


Figure S8.  $^{13}\text{C}$  NMR (100MHz,  $\text{CDCl}_3$ ) spectra of P(MPEP-*co*-BD)s (Table 1, entries 7-8).

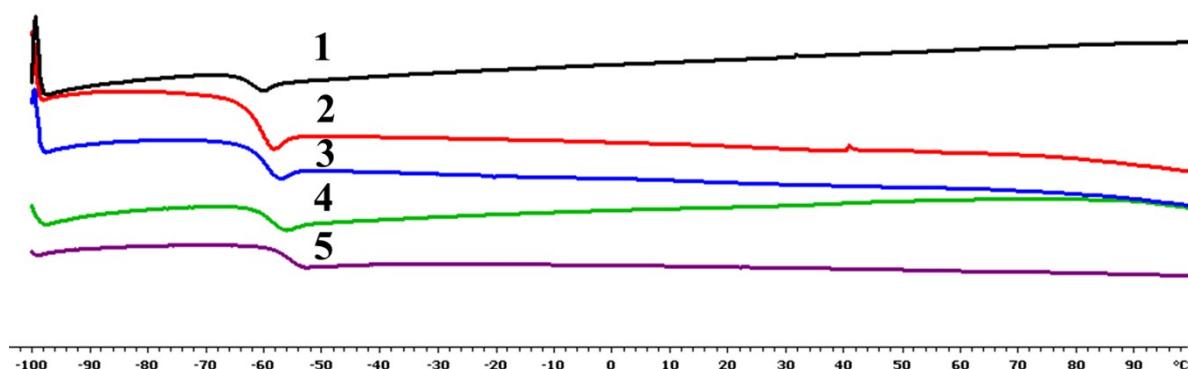


Figure S9. DSC curves of the P(MPEP-*co*-IP)s (Table 1, entries 1-5).

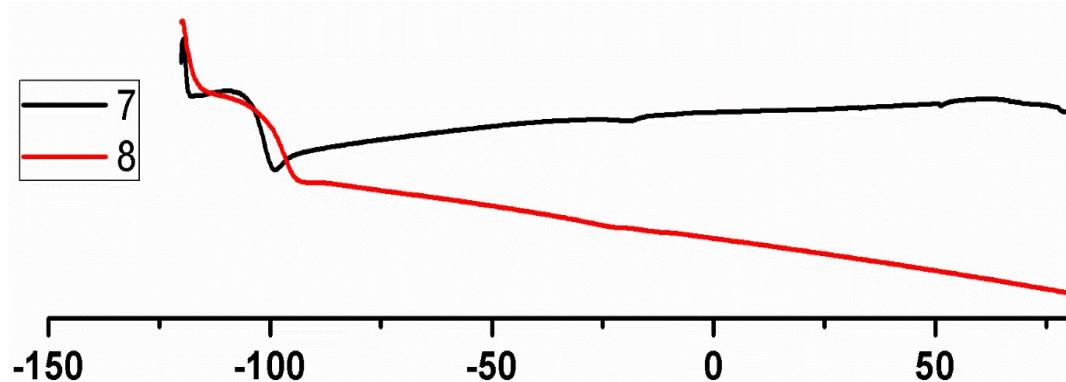


Figure S10. DSC curves of the P(MPEP-*co*-BD)s (Table 1, entries 7-8).

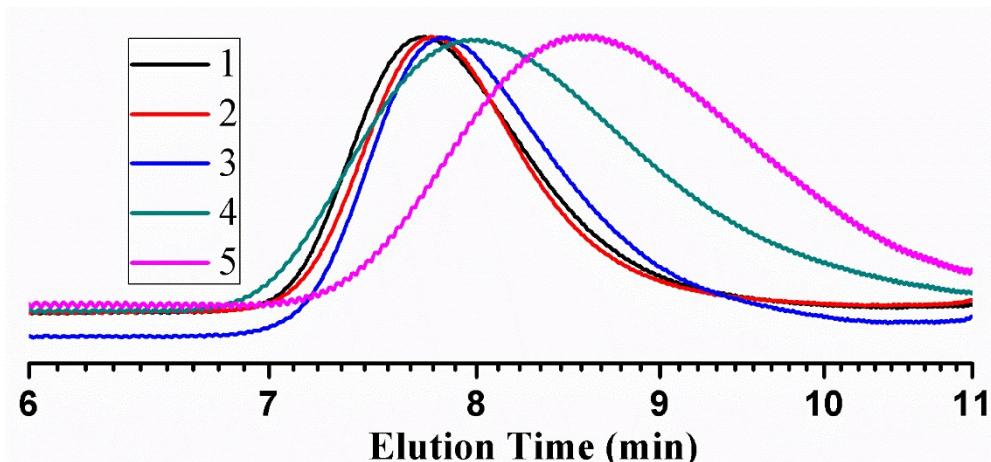


Figure S11. GPC curves of the P(MPEP-*co*-IP)s (Table 1, entries 1-5).

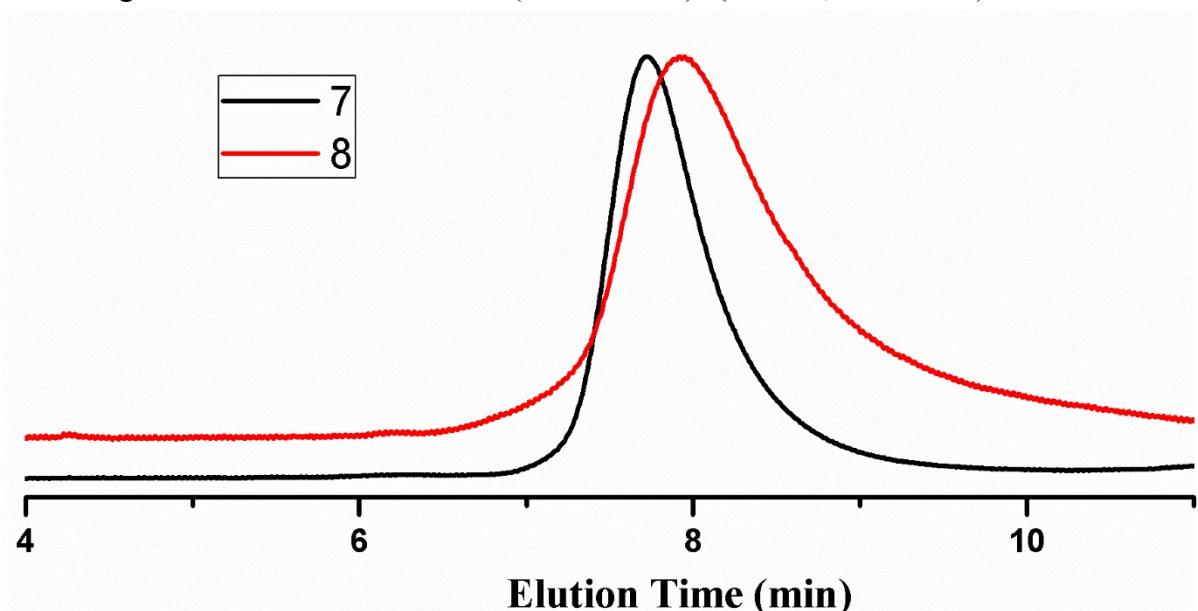


Figure S12. GPC curves of the P(MPEP-*co*-BD)s (Table 1, entries 7-8).

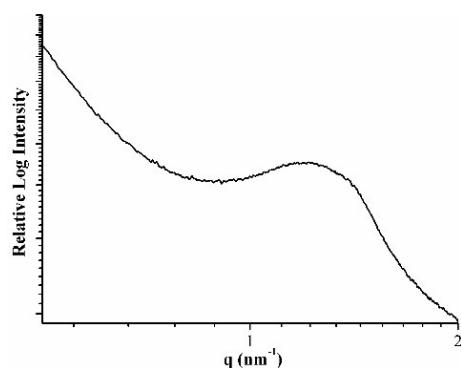


Figure S13. SAXS pattern of P(MPEP-*co*-IP)I

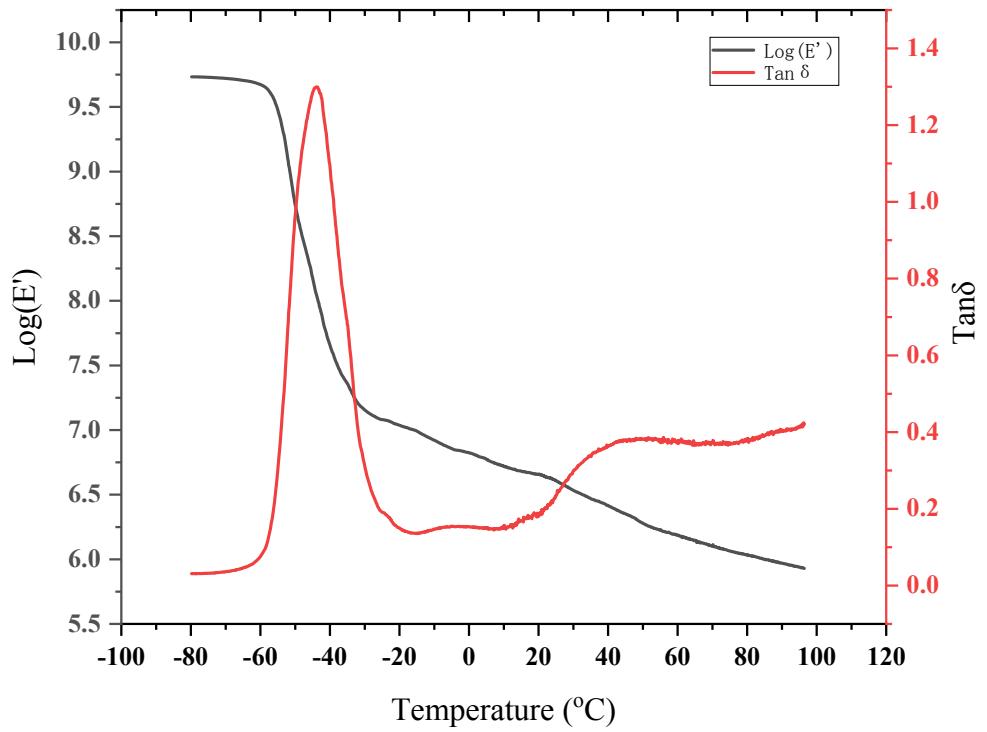


Figure S14. DMA curves of P(MPEP-co-IP)I