

Supporting Information

Polysiloxane/Polystyrene Thermo-Responsive and Self-Healing Polymer Network via Lewis Acid-Lewis Base Pair Formation

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(A) FIGURES

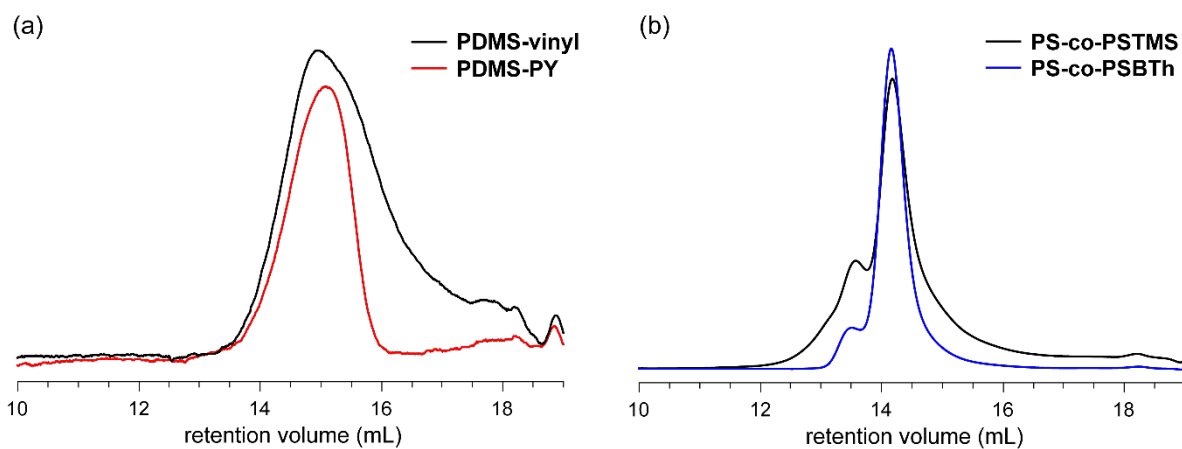


Figure S1. Gel permeation chromatograms of (a) PDMS polymers and (b) PS polymers.

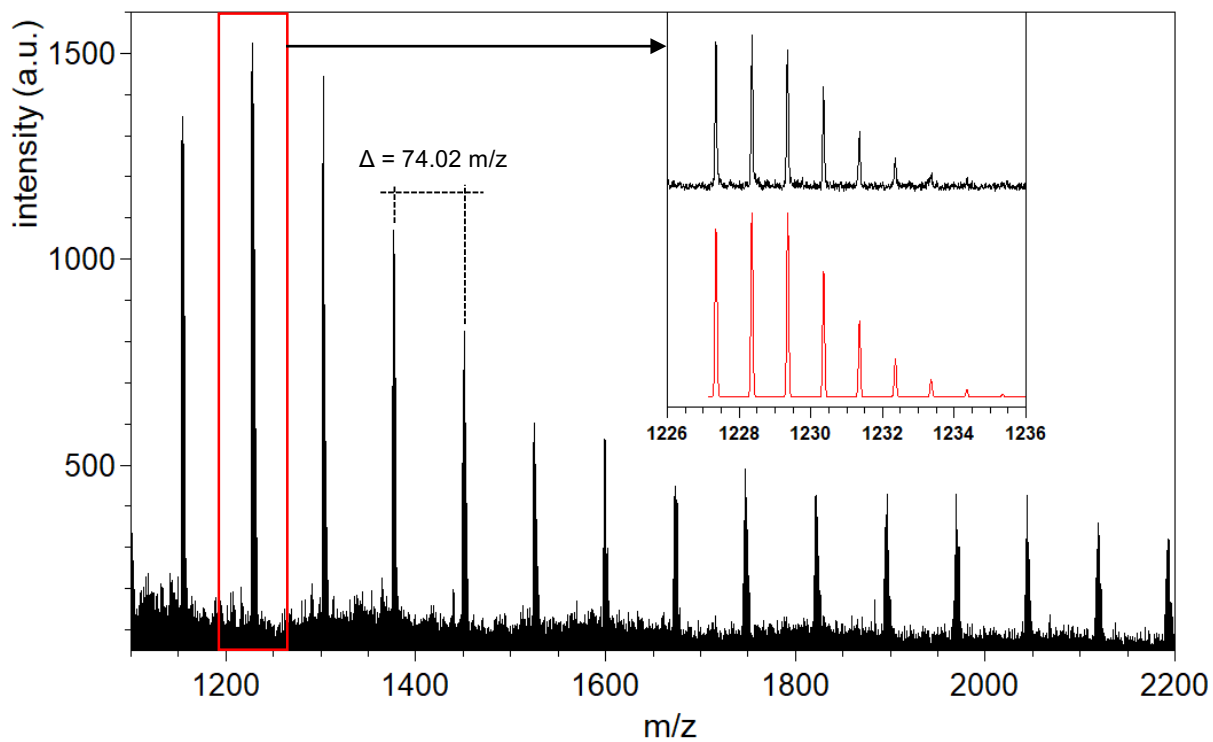


Figure S2. Portion of the MALDI-TOF mass spectrum of a low-molecular weight sample of **PDMS-PY**. Insert: zoom-in at the same experimental spectrum (top) and simulated spectrum for a polymer chain with a molecular formula of $C_{42}H_{96}O_{11}Si_{12}N_2S_2Na$ (bottom).

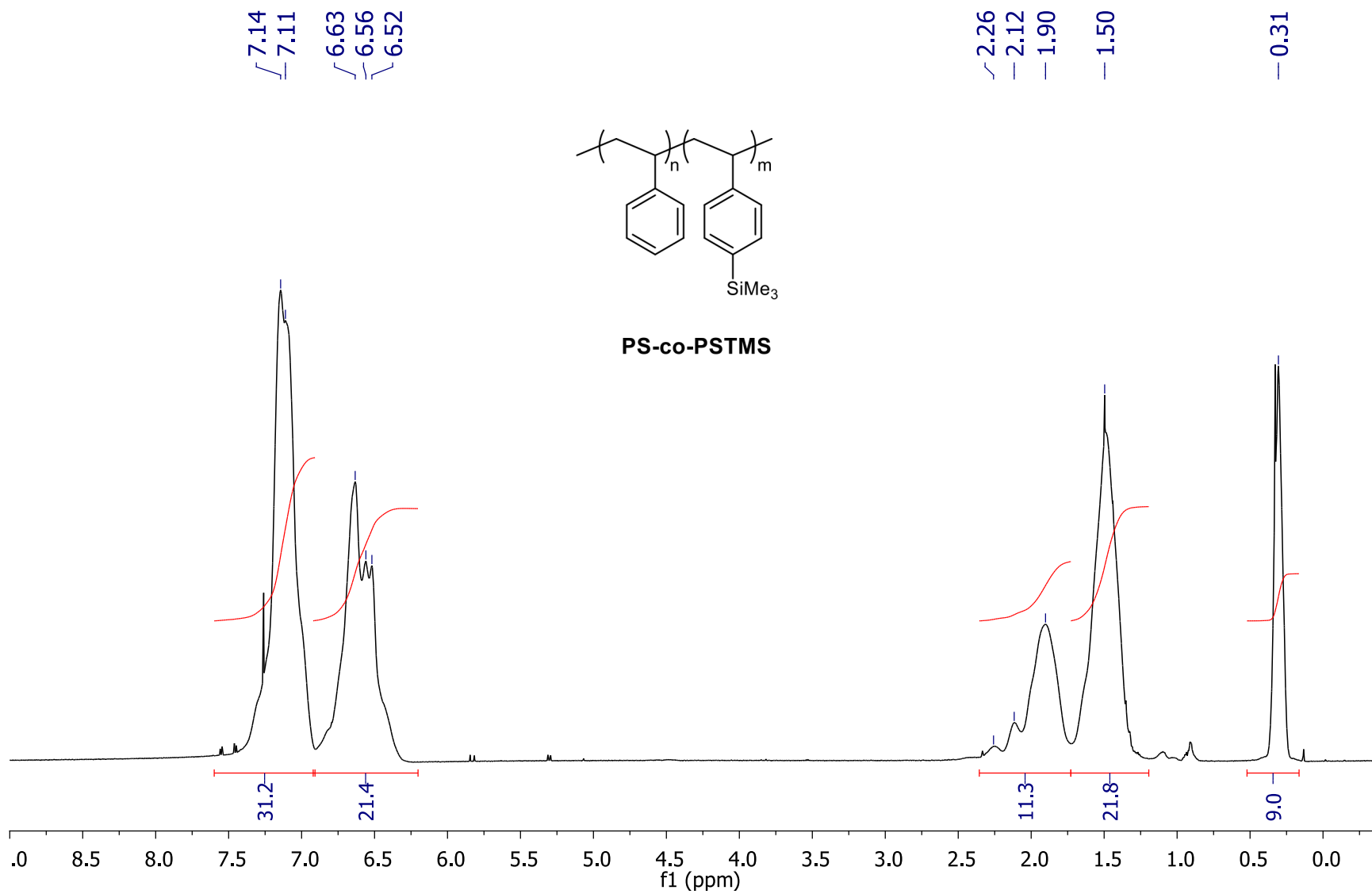


Figure S3. ¹H NMR (CDCl₃, 25 °C) of isolated PS-co-PSTMS.

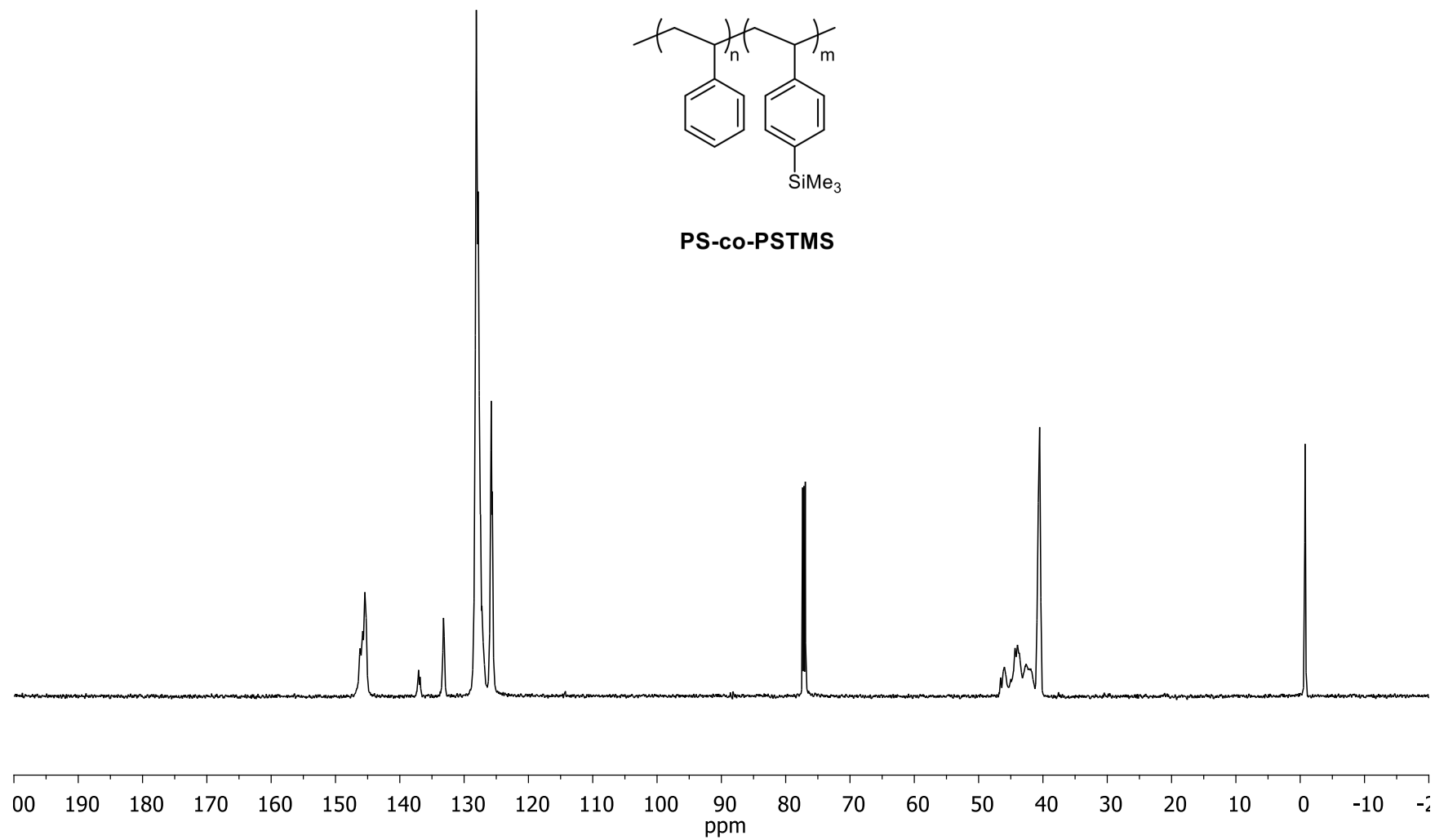


Figure S4. ^{13}C NMR (CDCl_3 , 25 °C) of isolated **PS-co-PSTMS**.

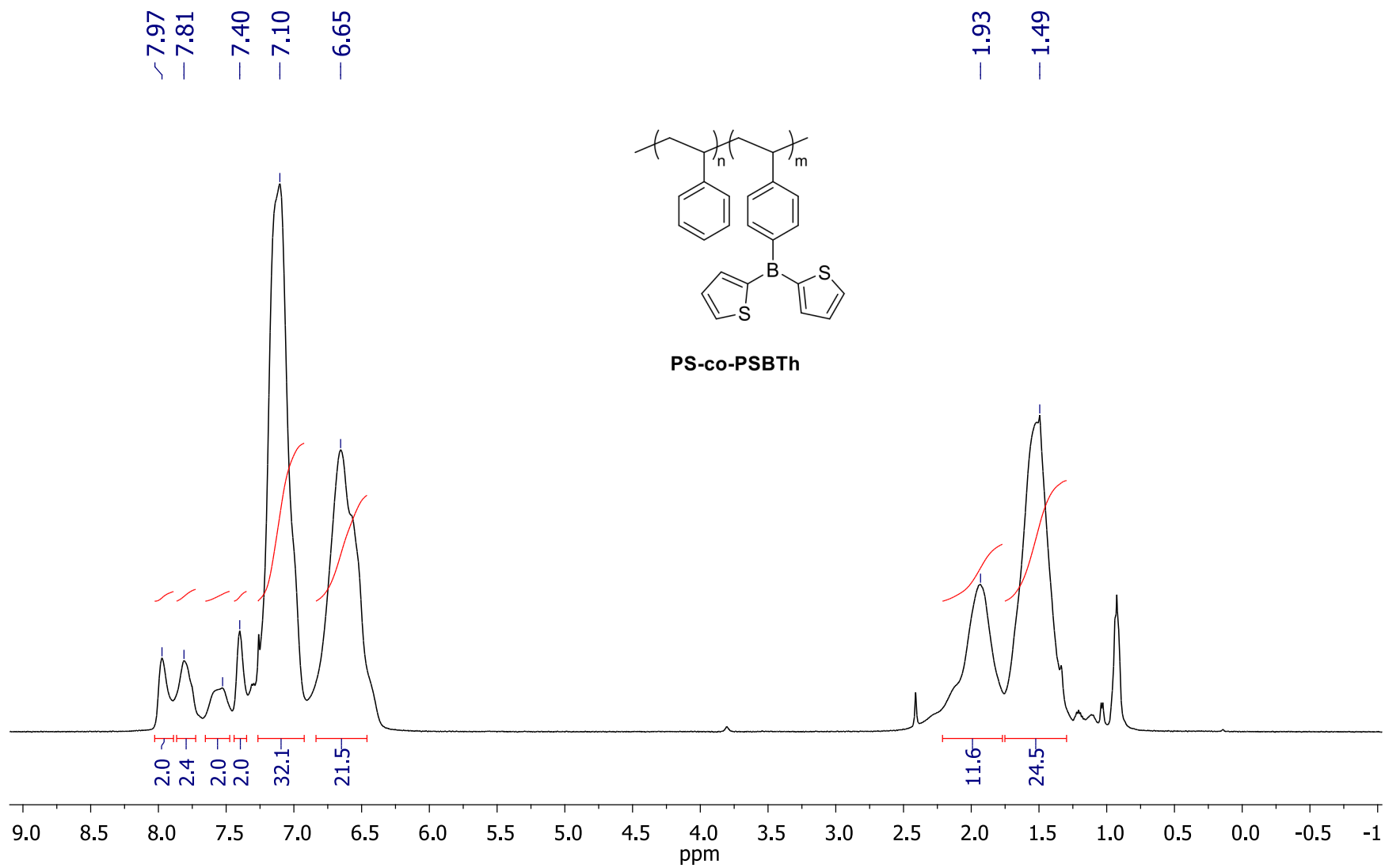


Figure S5. ¹H NMR (CDCl₃, 25 °C) of isolated PS-co-PSBTh.

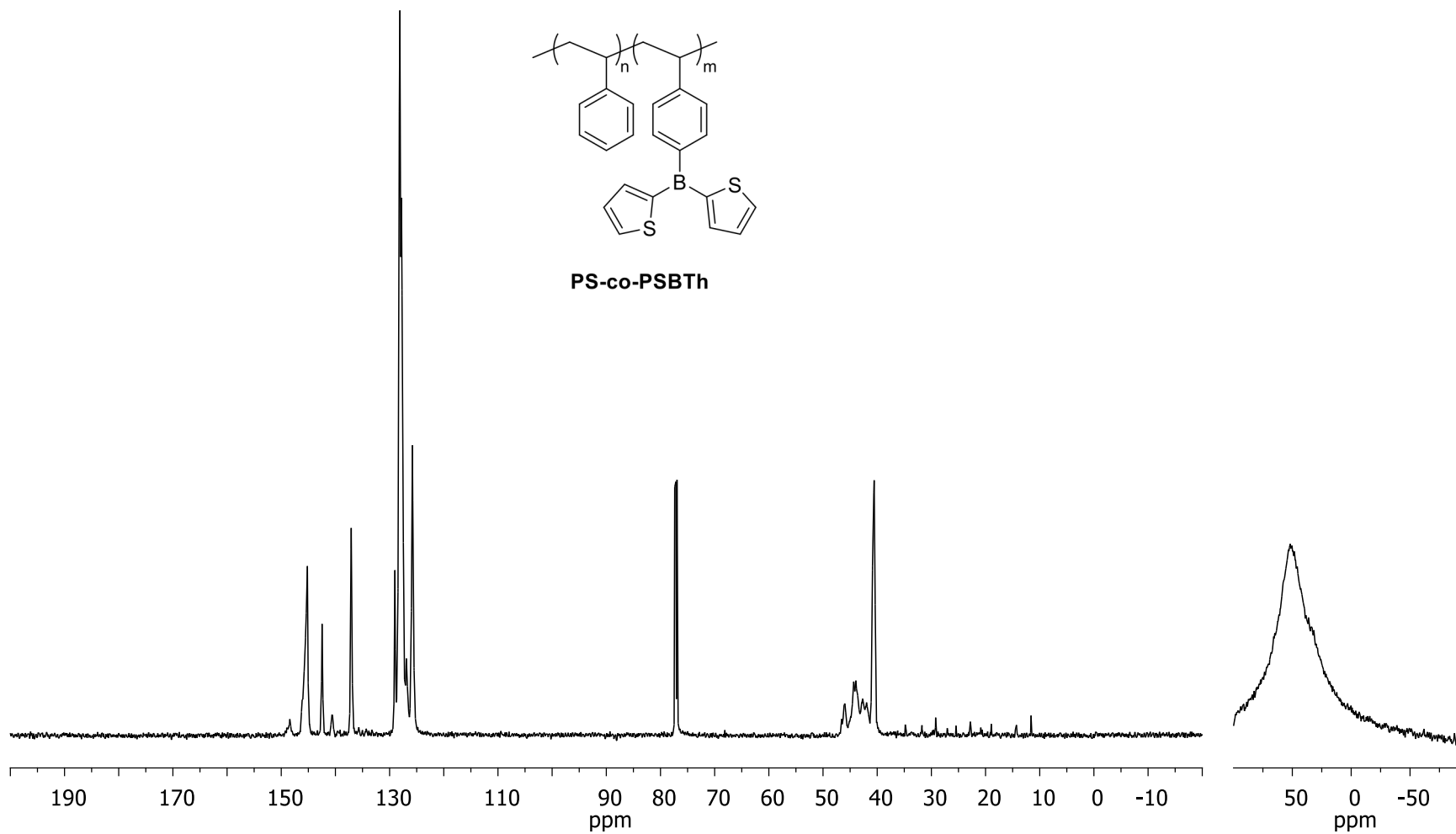


Figure S6. ^{13}C NMR (CDCl_3 , 25°C , left) and ^{11}B NMR (C_6D_6 , 25°C , right) of isolated **PS-co-PSBTh**.

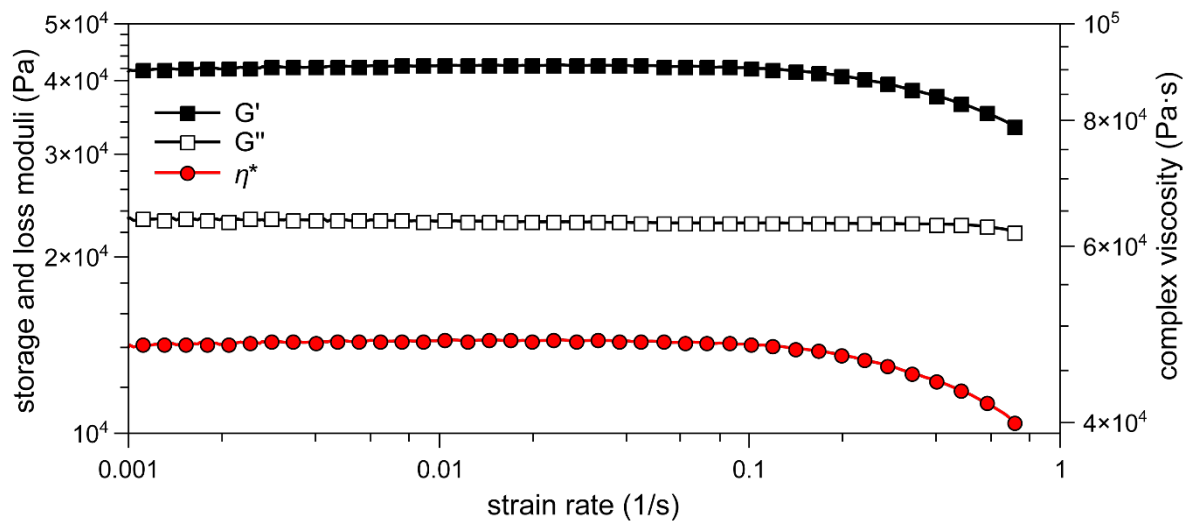


Figure S7. Strain-rate sweep (1 rad/s, at 25 °C) of PY-PSBTh dry gel (d).

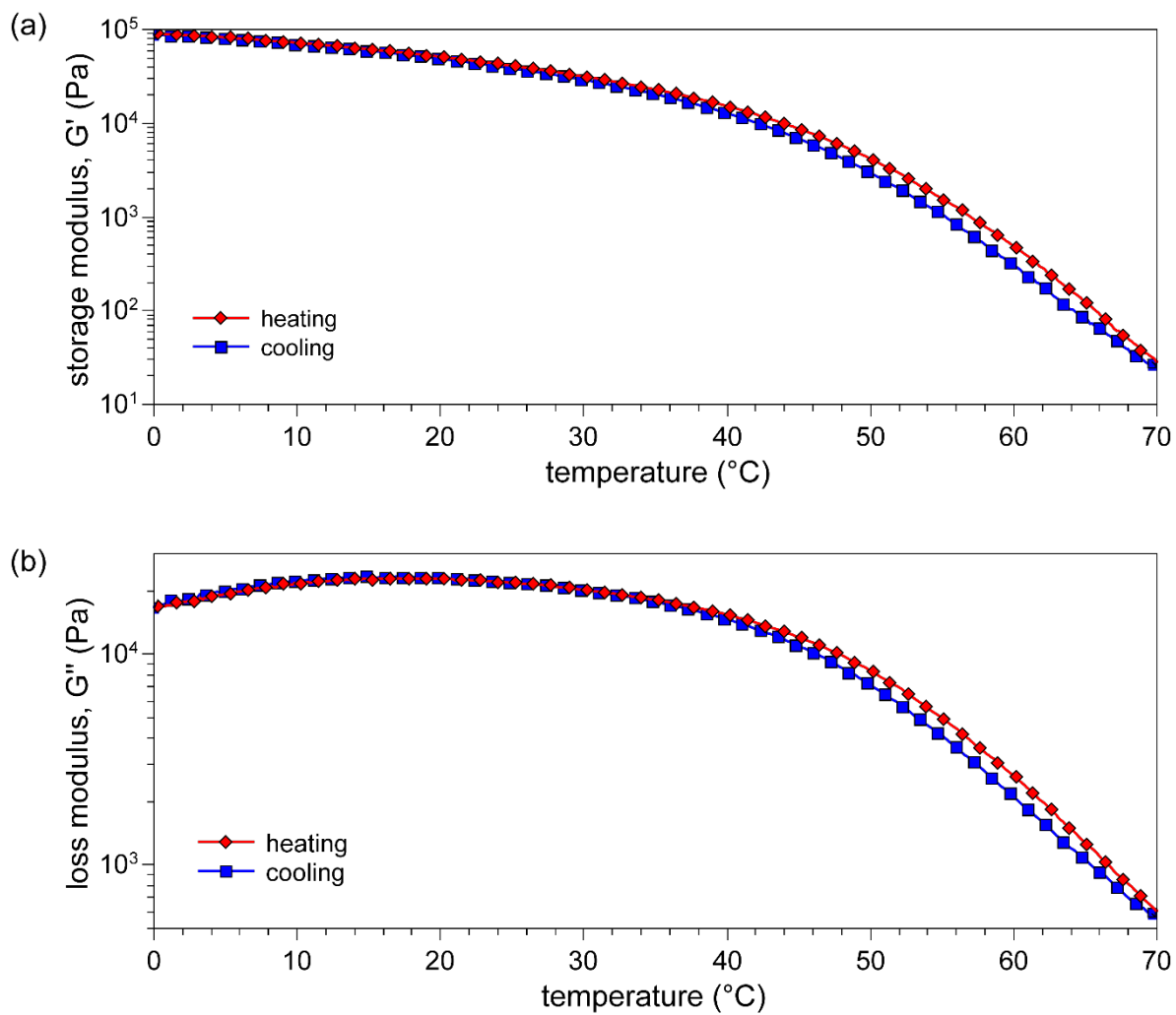


Figure S8. Temperature ramps (1 $^{\circ}\text{C}/\text{min}$, 1 rad/s, 1%) of **PY-PSBTh** dry gel on cooling (blue) and heating (red).

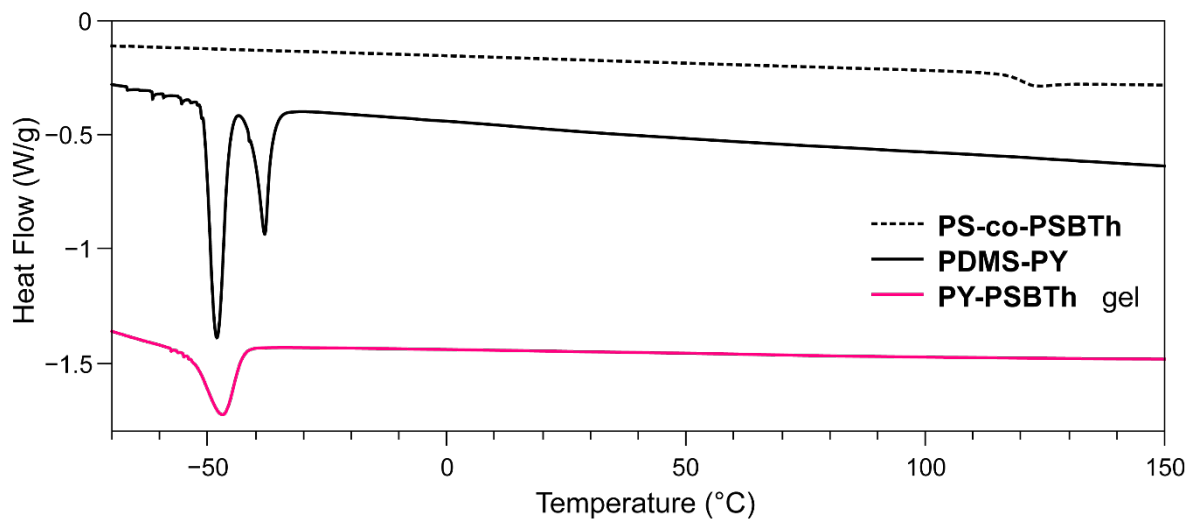


Figure S9. DSC thermograms of isolated **PS-co-PSBTh** (dotted black line), **PDMS-PY** (solid black line), and **PY-PSBTh** blend (solid pink line), ramp rate of 10 °C/min.

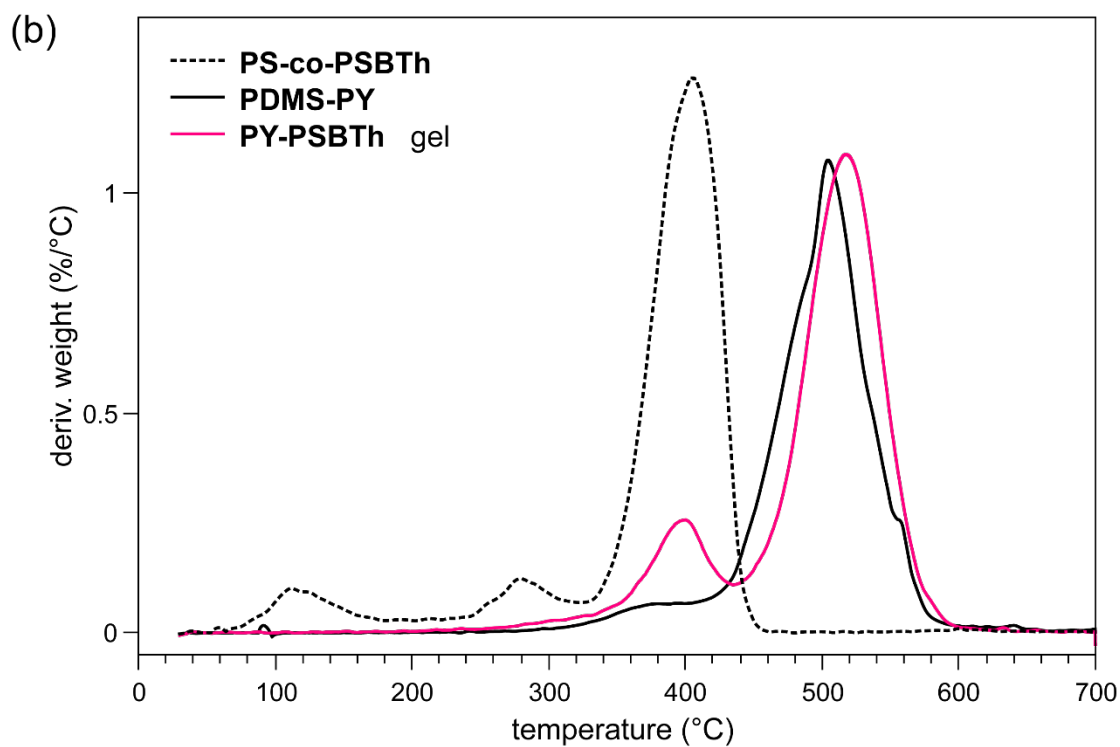
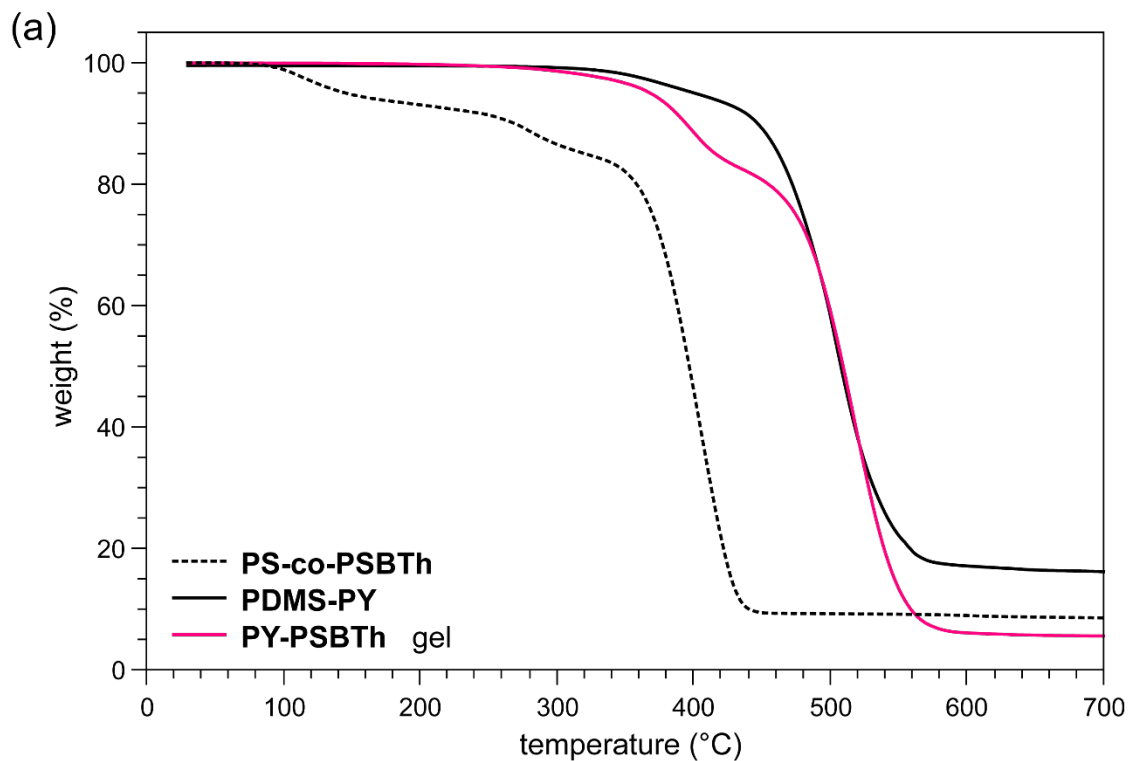


Figure S10. TGA traces of **PS-co-PSBTh** (dotted black line), **PDMS-PY** (solid black line), and **PY-PSBTh** blend (solid pink line), ramp rate of 10 °C/min: (a) weight (wt %) vs temperature (°C); (b) derivative (wt %/°C) vs temperature (°C).