

Supporting Information

Sustainable Thermoplastic Elastomers Derived from Plant Oil and Their “Click-Coupling” via TAD Chemistry

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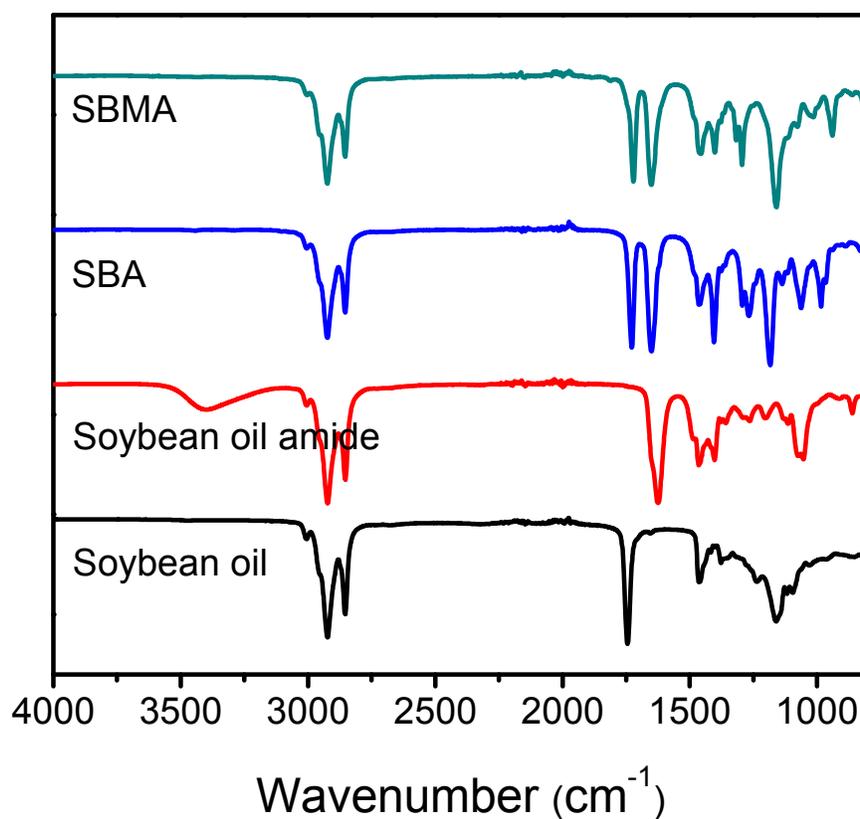


Fig. S1 FT-IR spectra of soybean oil, soybean oil amide, SBA and SBMA.

Table S1. Syntheses of triblock copolymers by ATRP Using Four Different Ligands

Entry	Ligand	Solvent	Molar ratio ^a	Conversion ^b
1	PMDETA	Toluene	200:1:1:1	(heterogeneous)
2	dnbpy	Toluene	200:1:1:1	17.0 %
3	HMTETA	Toluene	200:1:1:1	20.6 %
4	Me ₆ TREN	Toluene	200:1:1:1	24.8 %
5	Me ₆ TREN	THF	200:1:1:1	31.7 %
6	Me ₆ TREN	DMF	200:1:1:1	46.5 %

^aMolar ratio is defined as [SAB]/[EBBIB]/ [CuBr]/[L]. Polymerization was conducted at 90 °C for PMDETA, HETETA, and Me₆TREN, and at 100 °C for dnbpy. ^bThe conversion was determined via ¹H NMR.

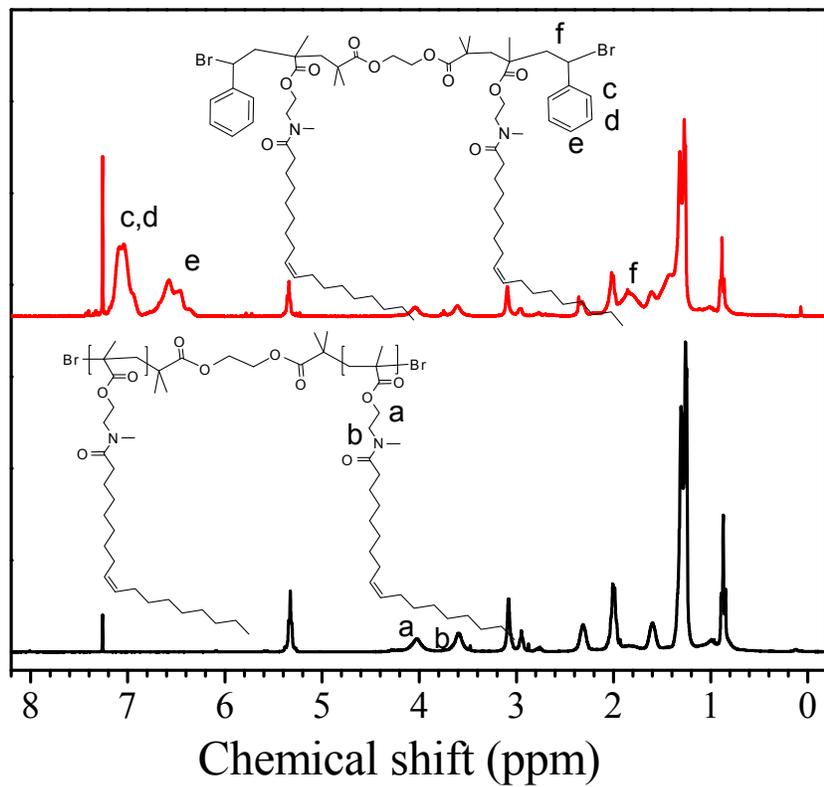


Fig. S2 ¹H NMR spectra of PSBMA and PST-b-PSBMA-b-PST triblock copolymers.

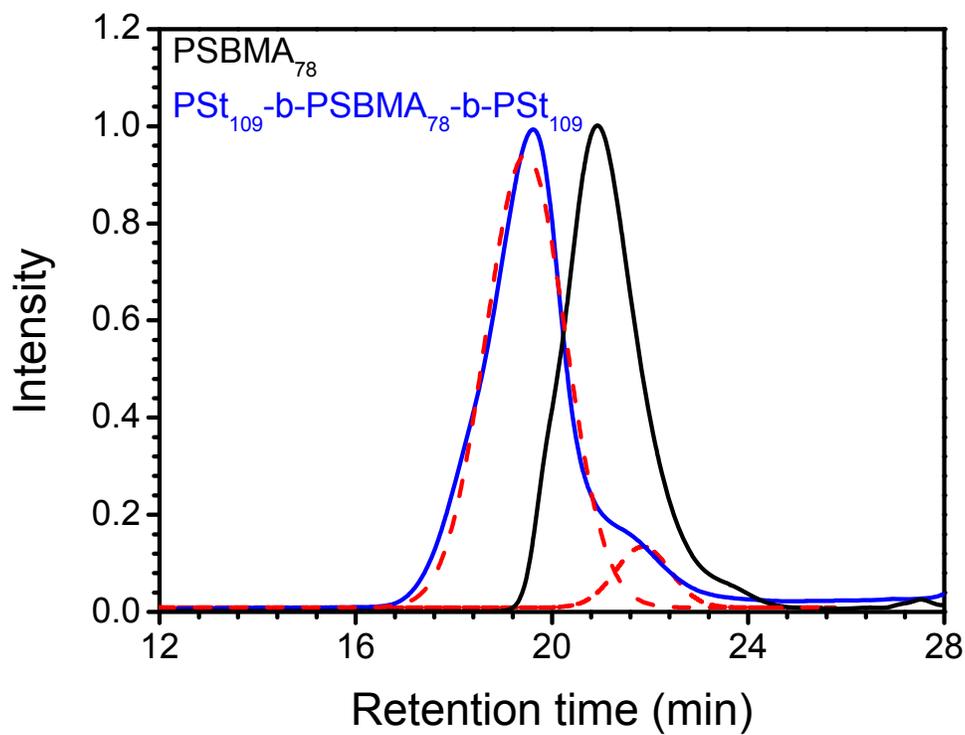


Fig. S3 The shoulder peak was calculated to be less than 10 % via multi peak fit.

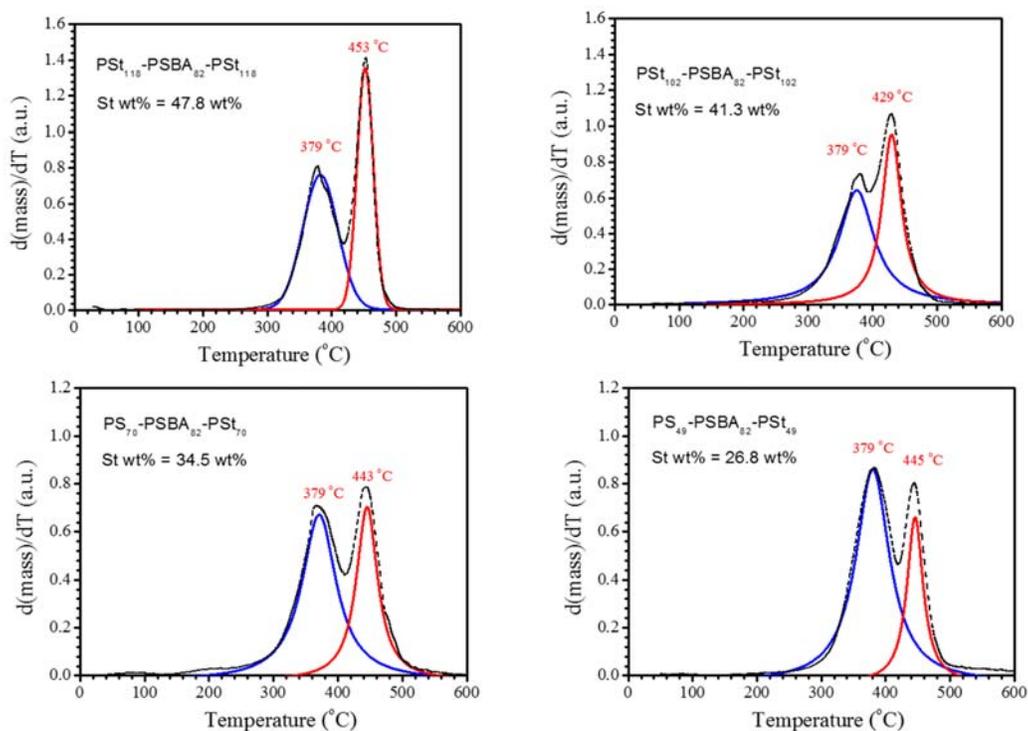


Fig. S4 Derivative TGA curves of PSt-b-PSBA-b-PSt triblock copolymers.

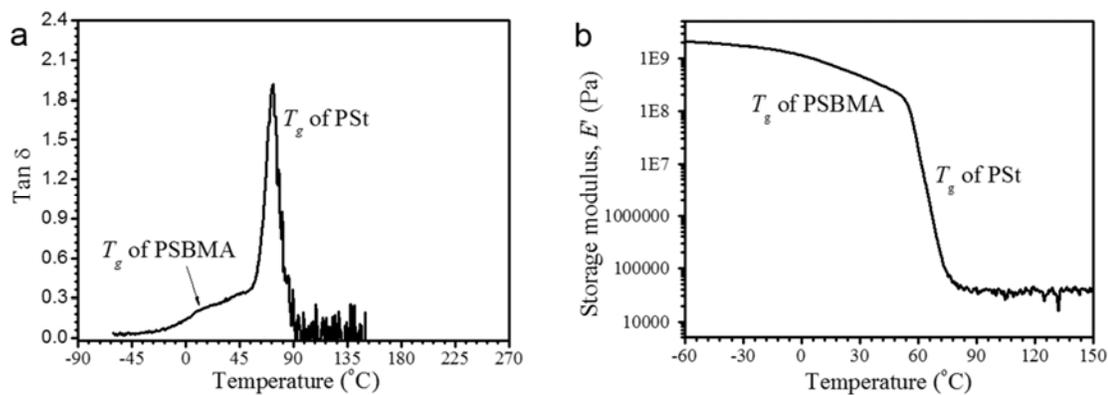


Fig. S5 DMA curves of loss tangent, $\tan \delta$ (a), and storage modulus, E' (b), versus temperature for PSt-b-PSBMA-b-PSt triblock copolymers, illustrating two distinct glass transition temperatures.

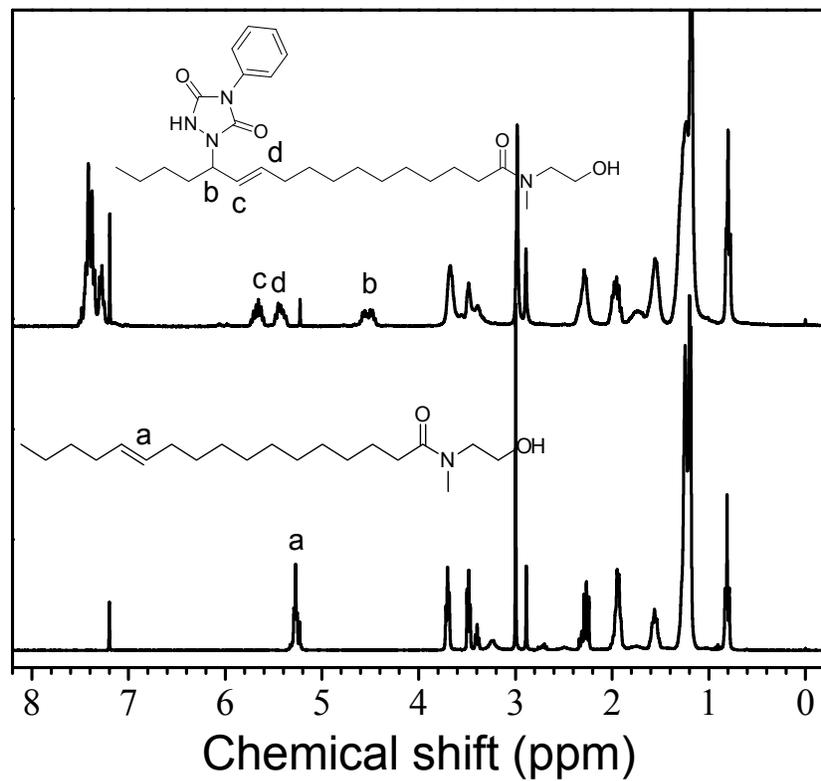


Fig. S6 ¹H NMR spectra of soybean oil amide before and after reacted with phenyl-TAD, a model study.

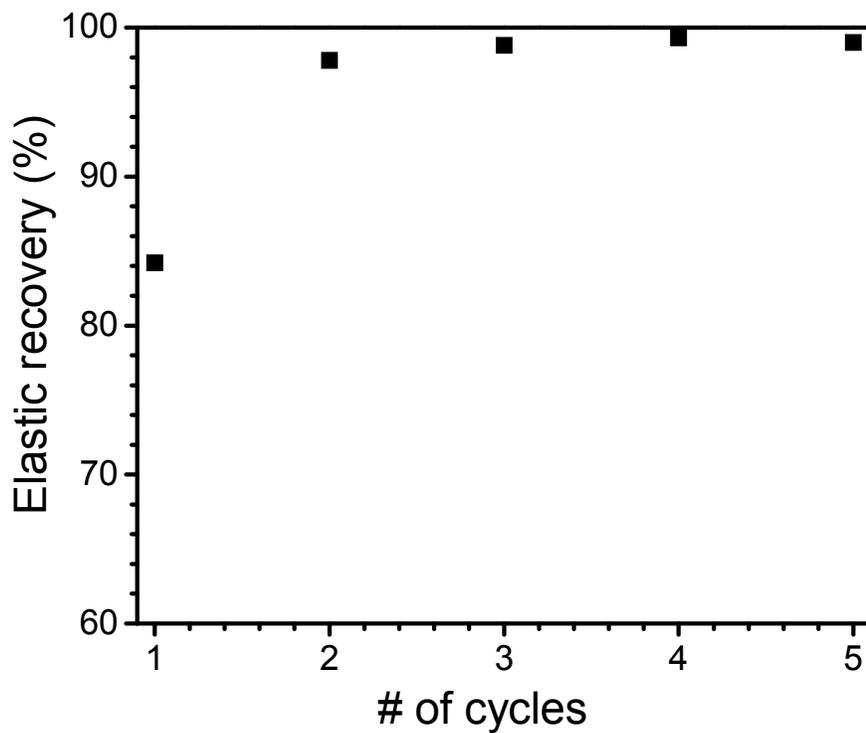


Fig. S7 Dependences of the elastic recovery on the number of cycles.