Reversible addition-fragmentation chain transfer polymerization of myrcene derivatives: an efficient access to fully bio-sourced functional elastomer with recyclable, shape memory and selfhealing properties

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Fig. S1 The GPC profiles of poly(My-OH) collected throughout the polymerization (run 3, table 1).



Fig. S2 The GPC profiles of poly(My-Py-OH) collected throughout the polymerization (run 8, table 1).



Fig. S3 The ¹³C NMR spectra of (a): poly(My-EPO), (b): poly(My-OH), (c):poly(My-(OH)₂), (d): poly(My-Fu-OH) and (e): poly(My-Py-OH)



Fig. S4. The FT-IR spectra of myrcene derived polymers



Fig. S5. The TGA profiles of poly(My-EPO), poly(My-OH), poly(My-(OH)₂), poly(My-Fu-OH) and poly(My-Py-OH)



Fig. S6. The morphology of AFM topography (a) poly(My); (b) poly(My-EPO); (c) poly(My-OH); (d) poly(My-(OH)₂); (e) poly(My-Fu-OH) and (f) poly(My-Py-OH)



Fig. S7. Copolymerization reactivity ratio determined by Fineman-Ross equation (My, $r_1 = 0.17$, My-EPO, $r_2 = 1.03$)



Fig. S8. Copolymerization reactivity ratio determined by Fineman-Ross equation (My, $r_1 = 0.35$, My-OH, $r_2 = 0.90$)



Fig. S9. Copolymerization reactivity ratio determined by Fineman-Ross equation (My, r_1 = 0.16, My-Py-OH, r_2 = 0.57)



Fig. S10. Copolymerization reactivity ratio determined by Fineman-Ross equation (My, r_1 = 0.22, My-Fu-OH, r_2 = 0.79)



Fig. S11. The ¹³C NMR spectra of poly(My-co-My-EPO)s (each copolymer is the same as Fig.7)



Fig. S12. The FT-IR spectra of poly(My-co-My-EPO)s (each copolymer is the same as



Fig. S13. The TGA curves of poly(My-co-My-EPO)s (each copolymer is the same as Fig.7)



Fig. S14. The DSC curves of poly(My-co-My-EPO)s (each copolymer is the same as Fig.7)



Fig. S15. Water contact angles: (each copolymer is the same as Fig.7)



Fig. S16. The ¹³C NMR spectrum of poly(My-co-My-OH) (run 7, Table 3)



Fig. S17. The ¹³C NMR spectrum of poly(My-co-My-Fu-OH) (run 14, Table 3)



Fig. S18. The ¹³C NMR spectrum of poly(My-co-My-Py-OH) (run 11, Table 3)



Fig. S20. The TGA curves of recycled Fu-BMI elastomer



Fig. S21. The evolution of tensile strength recovery with time (B, Py-Zn elastomer; C, Fu-BMI elastomer)