

## **Precision synthesis of biobased myrcene thermoplastic elastomer by using amphiphilic macro-raft agent via emulsion polymerization in aqueous medium**

Wen Li,<sup>‡a</sup> Guoyu Chen,<sup>‡a</sup> Jie Liu,<sup>a</sup> Youfang Zhang,<sup>a</sup> Jianyun Ding,<sup>a</sup> Runguo Wang,<sup>\*b</sup> Dean Shi,<sup>\*a</sup> Weiwei Lei,<sup>\*a</sup> Liqun Zhang<sup>b</sup>

*<sup>a</sup>Hubei Collaborative Innovation Center for Advanced Organic Chemical Materials, Ministry-of-Education Key Laboratory for the Green Preparation and Application of Functional Materials, Hubei Key Laboratory of Polymer Materials, Faculty of Materials Science and Engineering, Hubei University, Wuhan, 430062, PR China.*

*<sup>b</sup>State Key Laboratory for Organic-Inorganic Composites, Beijing University of Chemical Technology, Beijing, 100029, China.*

*\*Correspondence to: Runguo Wang (E-mail: wangrg@mail.buct.edu.cn), Dean Shi (Email: deanshi2012@hubu.edu.cn), Weiwei Lei (Email: leiweiwei@hubu.edu.cn)*

*‡These authors contributed equally.*

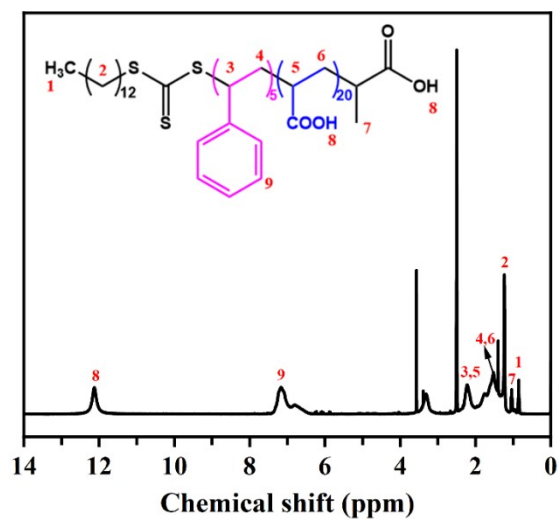


Fig. S1 <sup>1</sup>H NMR spectrum of Macro-RAFT agent.

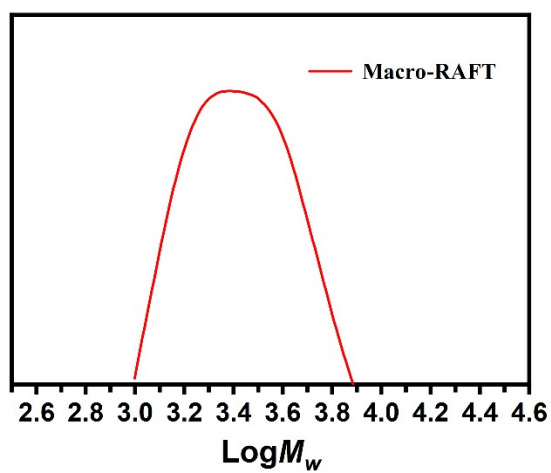


Fig. S2 GPC curve of macro-RAFT agent.

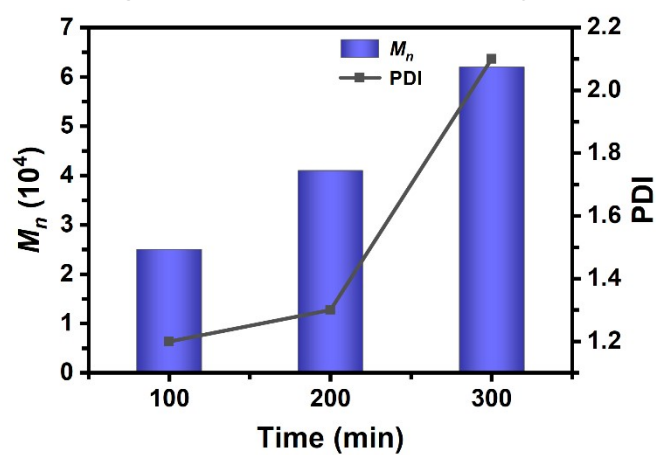


Fig. S3 Changes in Mn and PDI of PtBA at 100min, 200min, and 300min.

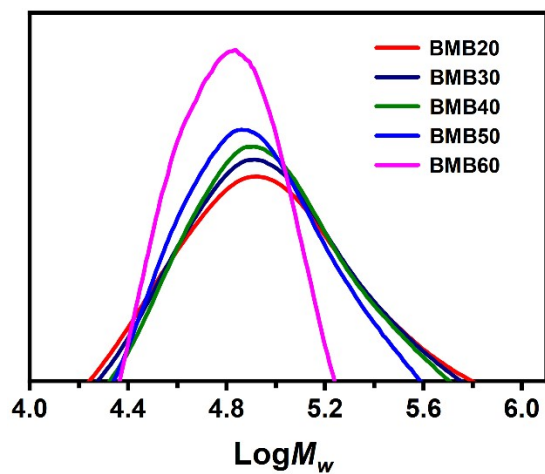


Fig. S4 GPC curves of BMBs.

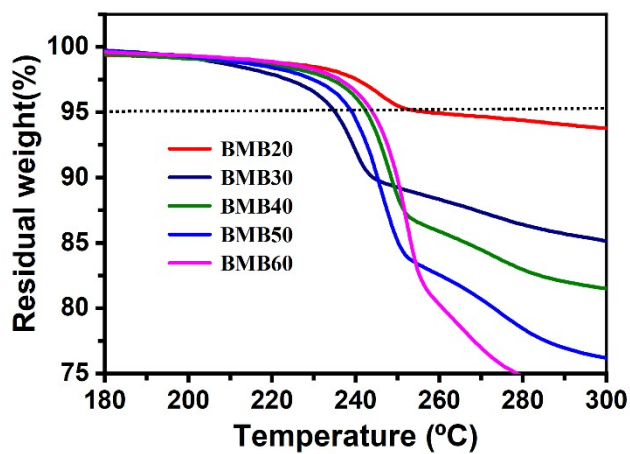


Fig. S5 The decomposition temperature of 5% mass loss of the BMBs.

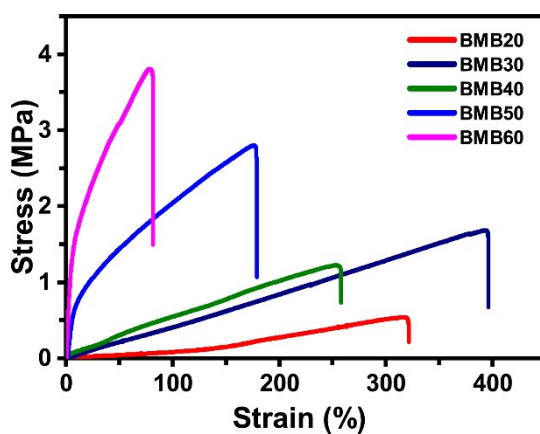


Fig. S6 Typical stress-strain curves of BMBs.

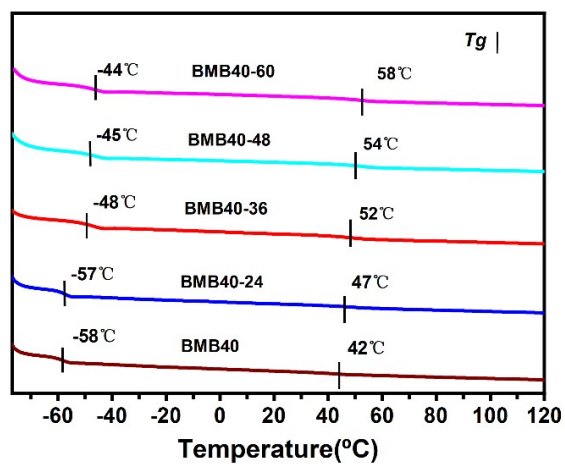


Fig. S7 DSC curves of BMB40 after hydrolysis modification.

Table S1 DT5 of BMBs.

| Sample | DT5(°C) |
|--------|---------|
| BMB20  | 254     |
| BMB30  | 235     |
| BMB40  | 242     |
| BMB50  | 239     |
| BMB60  | 244     |