

Electronic Supplementary Material (ESI) for Green Chemistry.

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Electronic Supplementary Information

Thermosetting polyurethanes prepared with the aid of a fully bio-based emulsifier with high bio-content, high solid content, and superior mechanical properties

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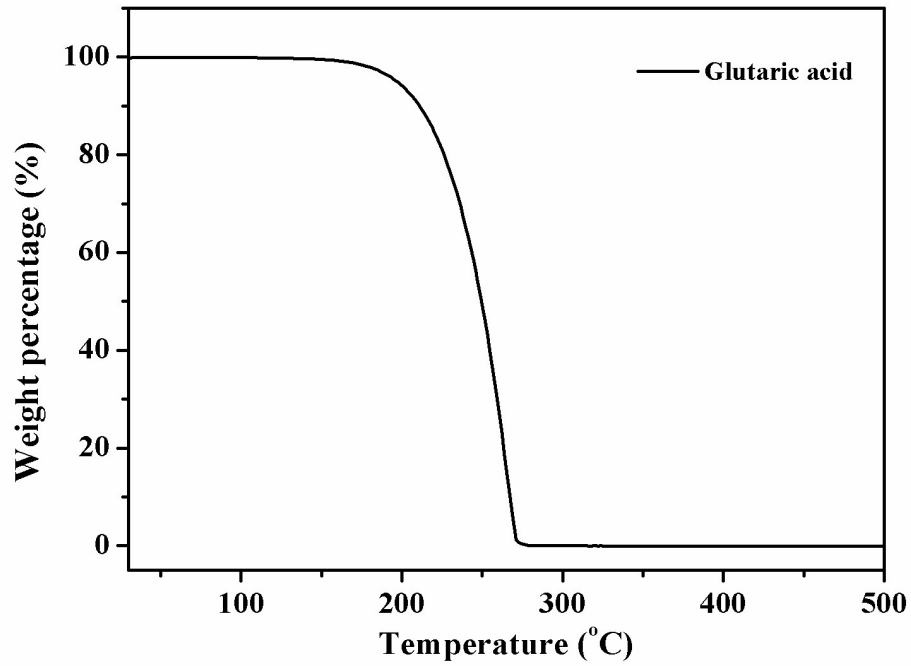


Fig. S1 TGA curves for glutaric acid

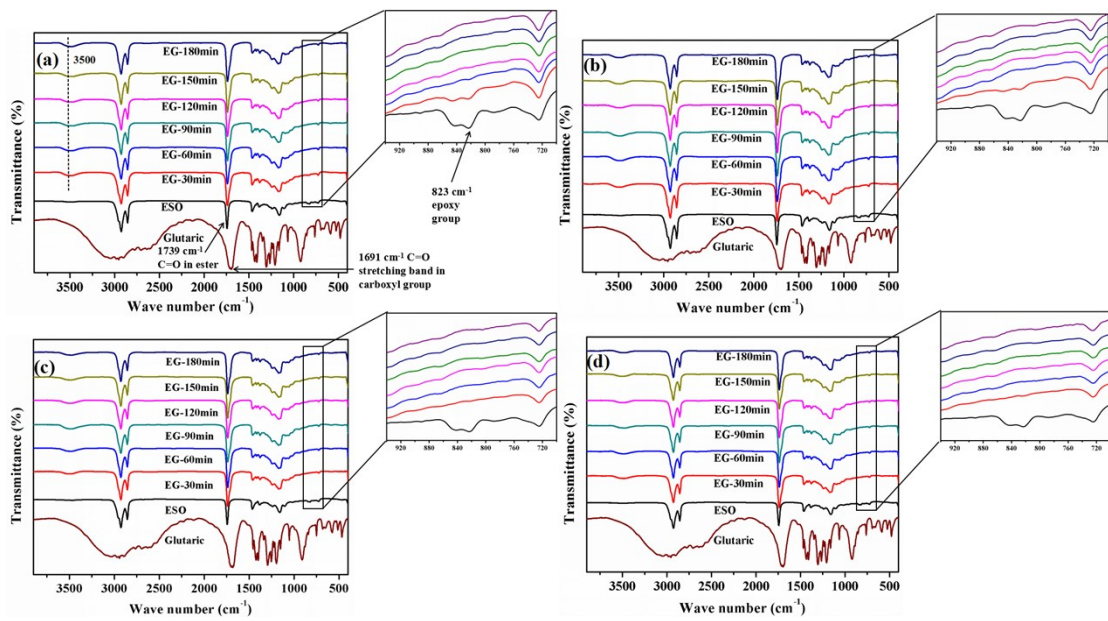


Fig. S2 FTIR spectra of the emulsifier for different reaction time with different ratios of carboxyl to epoxy groups (a) R=2, (b) R=3, (c) R=4, and (d) R=5.

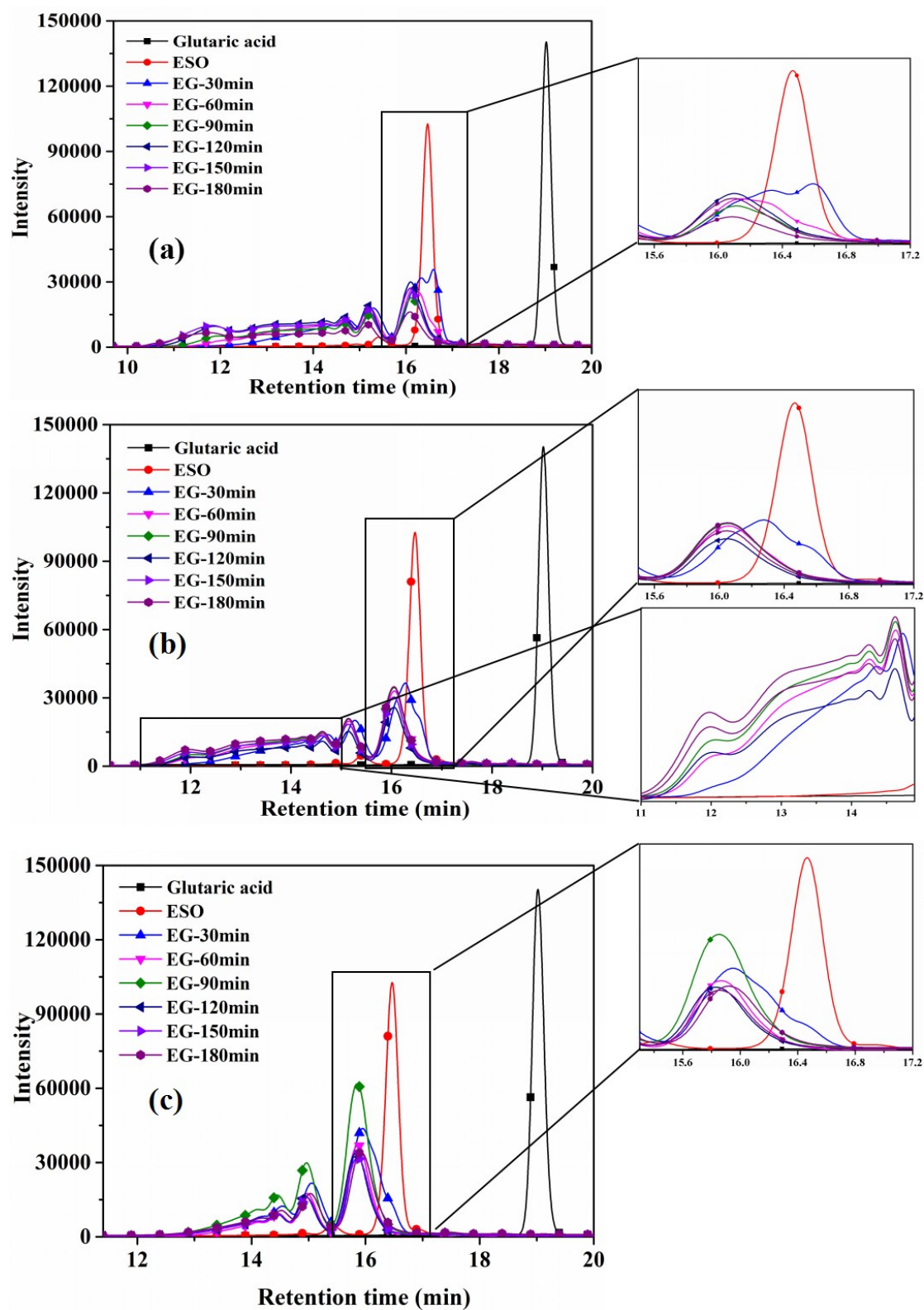


Fig. S3 GPC curves of the emulsifier for different reaction time with different ratios of carboxyl to epoxy groups (a) $R=2$, (b) $R=3$, and (c) $R=5$.

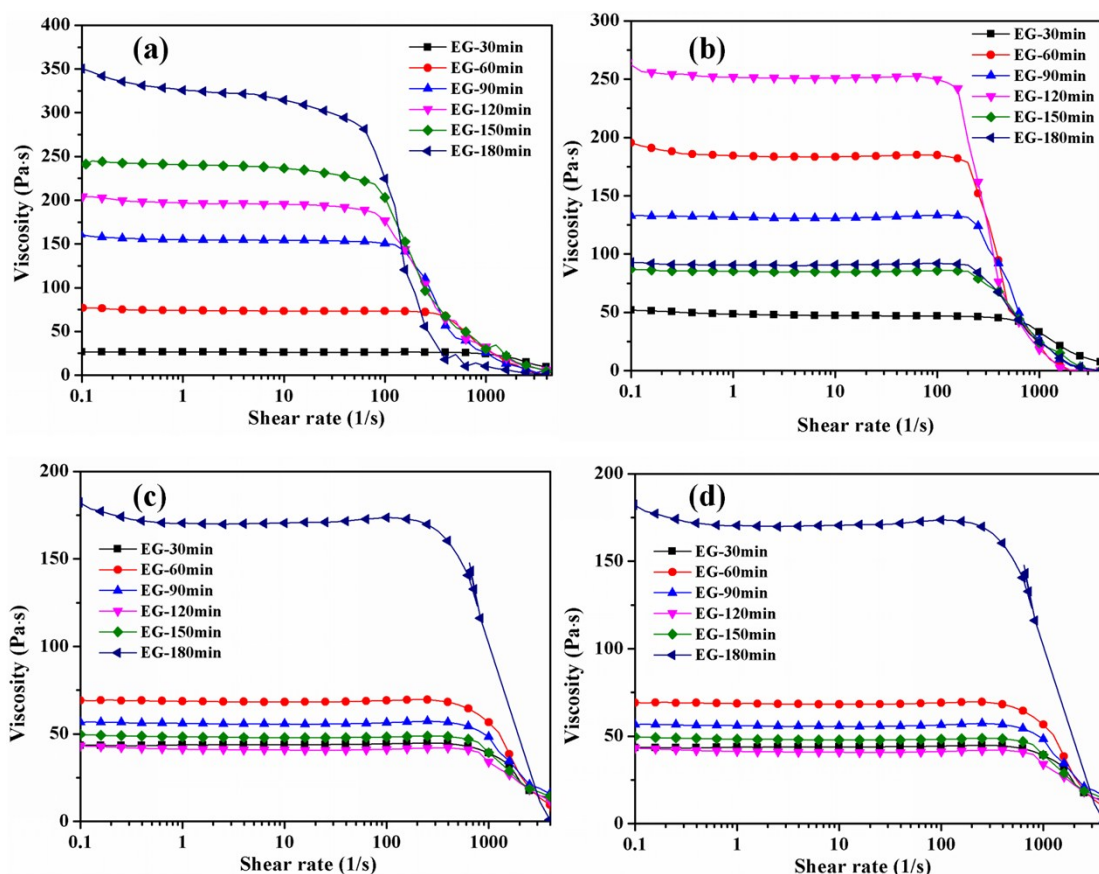


Fig. S4 Rheological behavior of the emulsifier prepared for different reaction time with different ratios of carboxyl to epoxy groups (a) R=2, (b) R=3, (c) R=4, and (d) R=5.

Table S1. Viscosity of the emulsifier at different molar ratio of carboxyl to epoxy groups for different reaction time when shear rate was 25 s^{-1} .

Reaction time (min)	Viscosity of EG-2 (Pa · s)	Viscosity of EG-3 (Pa · s)	Viscosity of EG-4 (Pa · s)	Viscosity of EG-5 (Pa · s)
30	26.3	47.06	43.91	48.87
60	73.32	184.1	68.33	95.13
90	153.9	131.5	55.64	105.9
120	193.8	251.5	40.71	66.18
150	231.3	84.9	47.93	97.13
180	302.3	91.17	171.1	135.7