

Supplementary information (ESI)

Recyclable cross-linked hydroxythioether particles with tunable structures via robust and efficient thiol-epoxy dispersion polymerizations

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Table S1 Size, size distribution and yields of particles prepared by stoichiometric PETMP-TMTGE with different monomer concentrations

Monomer concentration	Particle Size	CV. (%)	Yields (%)
1.15 g	0.94	18.8	72%
2.30 g	1.31	25.4	75%
4.70 g	1.81	22.5	79%
6.90 g	2.12	16.8	82%
9.30 g	2.32	23.8%	85%
11.50 g	3.02	26.8%	89%

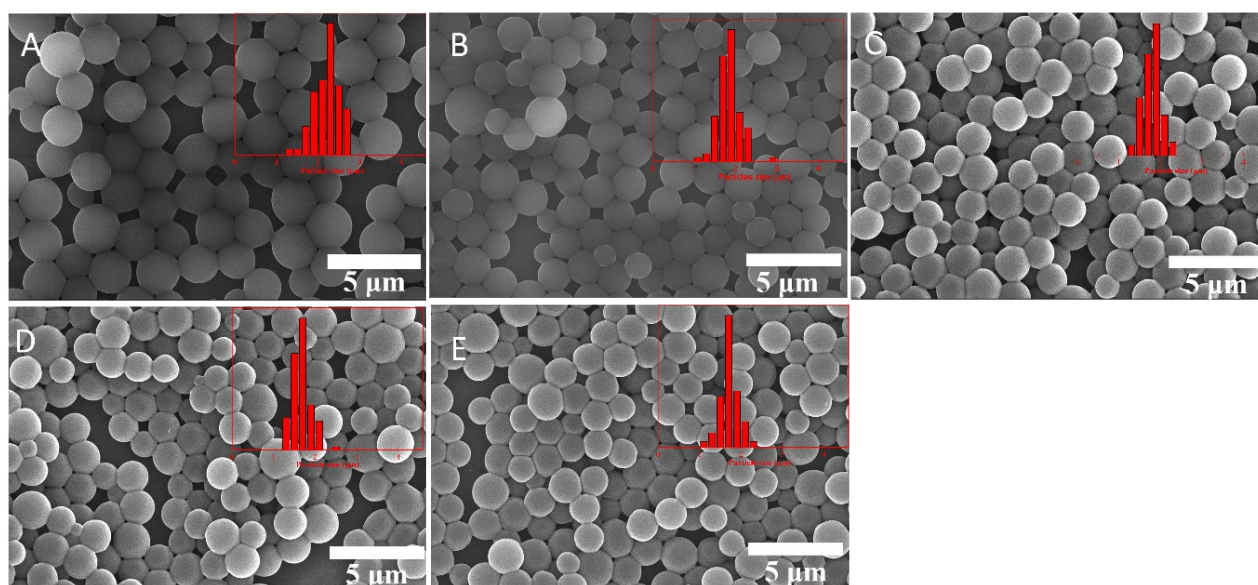


Figure S1 SEM images of stoichiometric PETMP-TMTGE particles with different DBU concentrations: A (0.1 mL) B (0.3 mL) C (0.5 mL) D (0.7 mL) E (0.9 mL). Condition used: PETMP (2.7 g), TMTGE (2.0 g), PVP (3.0 g), 2-propanol (100 g), and the reaction lasted overnight without stirring. The size distribution was inserted. The yields of these experiments kept at ~80%.

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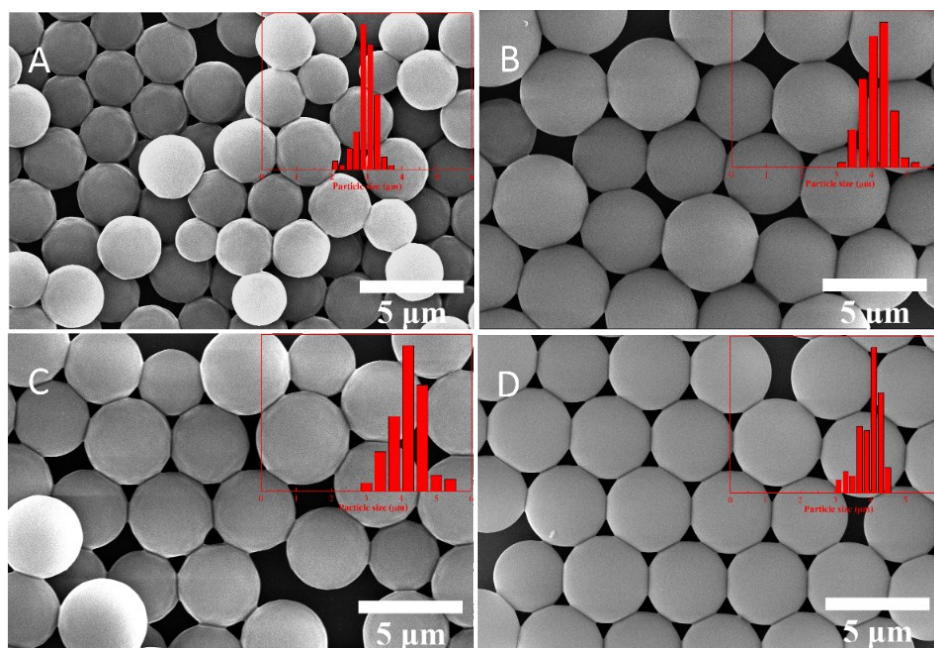


Figure S2. SEM images of stoichiometric TMMP-TMTGE particles with different PVP: A (1 g) B (3 g) C (5 g) D (7 g). Condition used: TMMP (3.9 g), TMTGE (3.0 g), PVP (5.0 g), 2-propanol (100 g), DBU (0.5 mL) and the reaction lasted overnight without stirring. The size distribution was inserted. The yields of these experiments kept at ~80%.

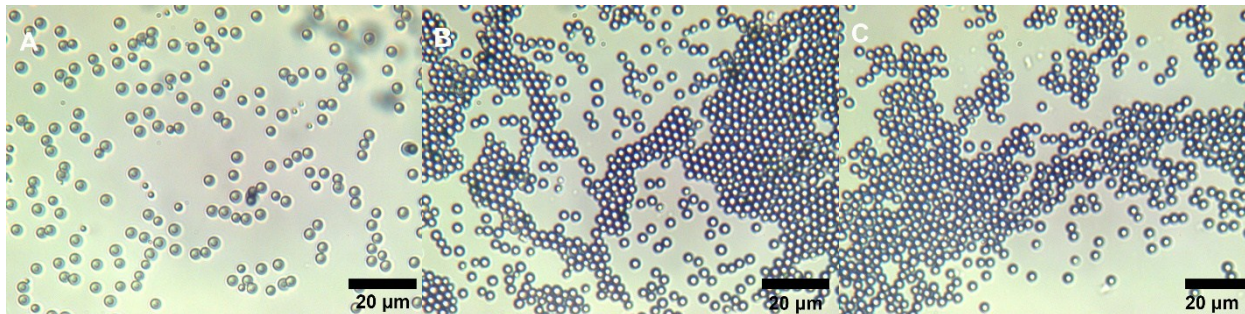


Figure S3. Microscope photographs of the pristine (A), H_2O_2 oxidized (B), mCPBA oxidized (C) TMMP-ERL 4221 particles

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Figure S4. Images of TBD-catalyzed TMMP-TMTGE dispersion polymerization in ethanol with different reaction time: A (0 min), B (5 min), C (30 min), D (60 min), E (120 min). Conditions: TMMP (2.7 g), TMTGE (2.0 g), PVP (5.0 g), 2-propanol (80 g), TBD (0.4 g).

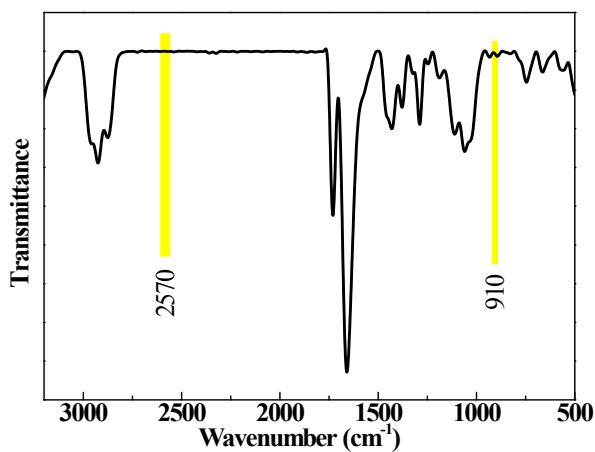


Figure S5. FTIR spectrum of the clear solution of TBD-catalyzed TMMP-TMTGE dispersion polymerization

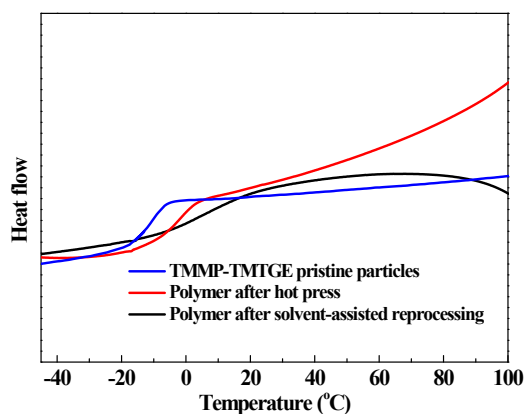


Figure S6 DSC trace of TMMP-TMTGE particles and bulk polymer after remolding and reprocessing

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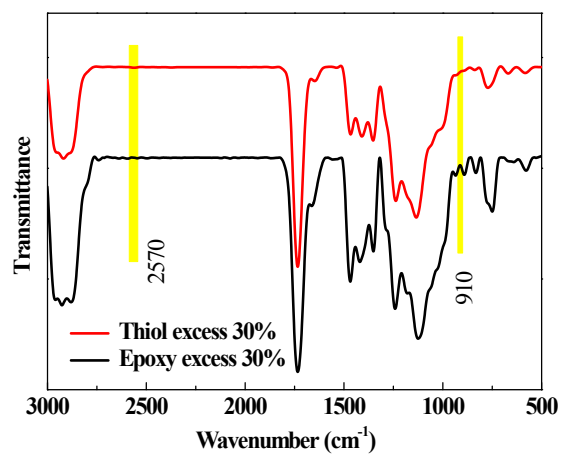


Figure S7 FTIR spectra of thiol-excess particles and epoxy-excess particles.