Supporting Information

Thiol-isocyanate Click Reaction in Pickering Emulsion: A Rapid and Efficient Route to Encapsulation of Healing Agents

Chunmei Li, Jiaojun Tan, Hui Li, Dezhong Yin, Junwei Gu, Baoliang Zhang and Qiuyu Zhang*

Key Laboratory of Applied Physics and Chemistry in Space of Ministry of Education, School of Science, Northwestern Polytechnical University, Xi'an 710072, Shaanxi, China

Email:qyzhang1803@gmail.com

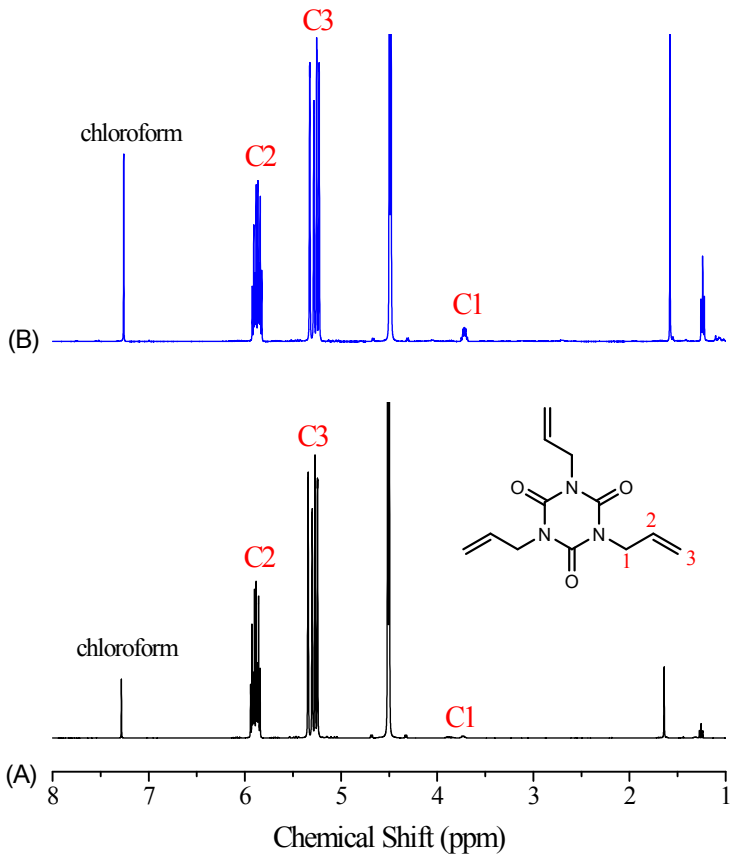

Figure S1 ^{1}H NMR spectra of (A) TTT monomer and (B) the extracted core of TTT loaded microcapsules (sample 3) in chloroform-d.

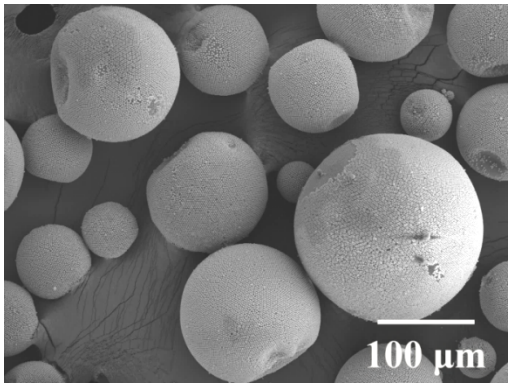

Figure S2 SEM image of the shell materials obtained in the same condition as the microcapsules (sample 3) except that the TTT was not added.

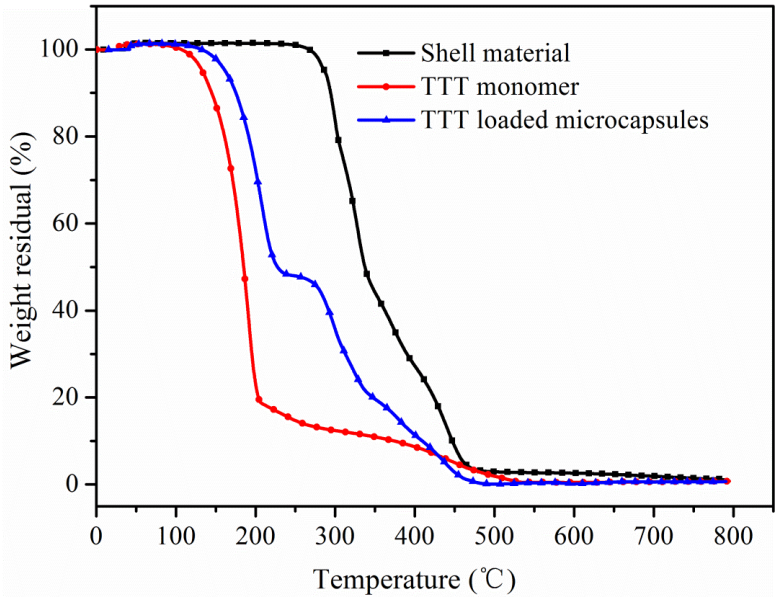

Figure S3 TGA curves: shell material■, TTT monomer● and TTT loaded microcapsules▲. The microcapsules were sample 3. The shell material was obtained in the same condition as sample 3 except that the TTT was not added and its SEM image is given in Figure S3. TGA measurements were performed under the condition that temperature was raised from 25 to 800 °C.

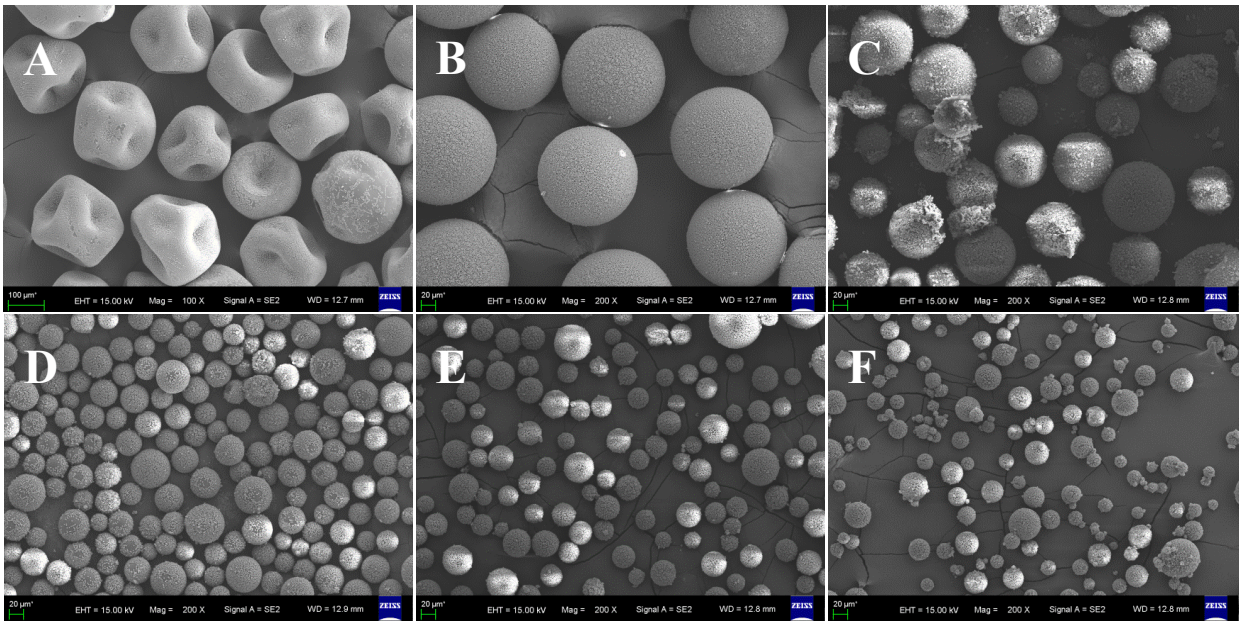

Figure S4 SEM images of GMA loaded microcapsules made with different hydrolyzed PGMA particle concentration: (A) 0.5% (B) 1%, (C) 2%, (D) 3%, (E) 4%, (F) 5%. All microcapsules were

made with 70% designed weight ratio of GMA in the mixed oil phase.

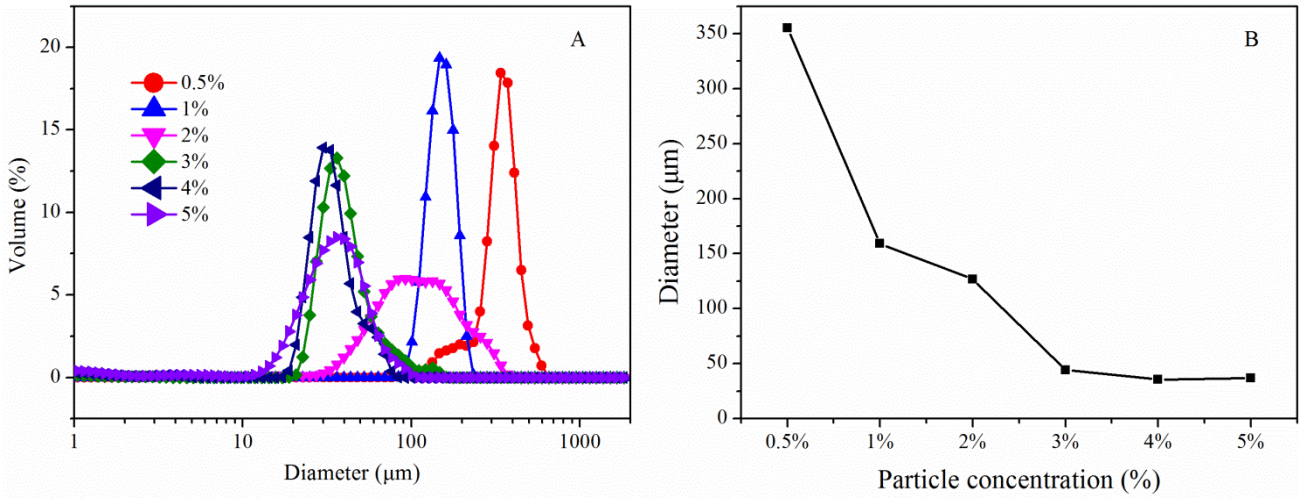

Figure S5 The size distributions of GMA loaded microcapsules prepared under various hydrolyzed PGMA particle concentration and (B) Diameters as a function of particle concentration. All microcapsules were made with 70% designed weight ratio of GMA in the mixed oil phase.

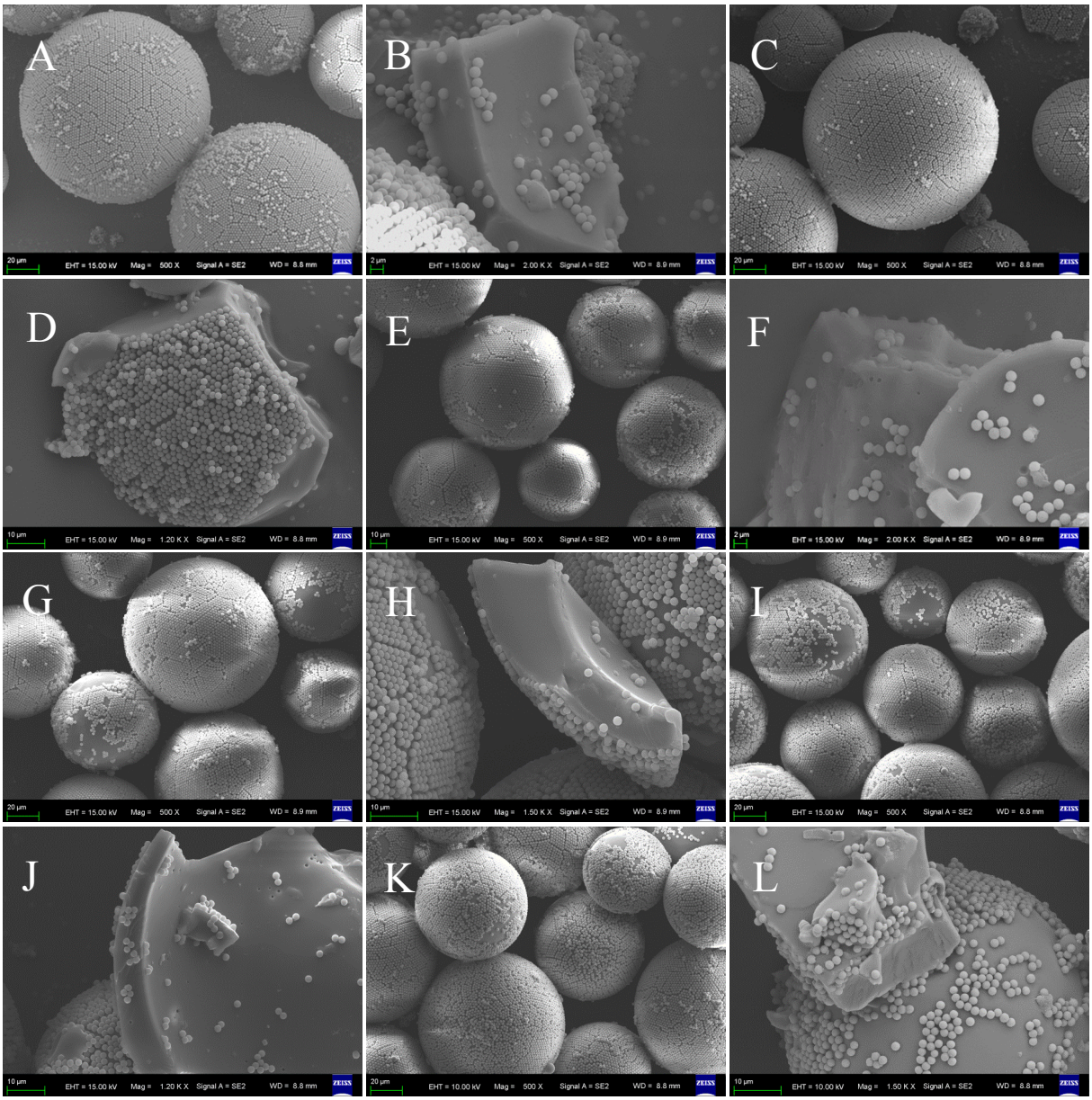

Figure S6 SEM images of integrated and ruptured TTT loaded microcapsules under different stirring speeds: (A), (B) 500 rpm; (C), (D) 800 rpm; (E), (F) 1000 rpm; (G), (H) 1200 rpm; (I) (J) 1500 rpm; (K) (L) 1800 rpm. The microcapsules were made as the same recipe of sample 3 except that the emulsification method was stirring instead of shaking by hand.

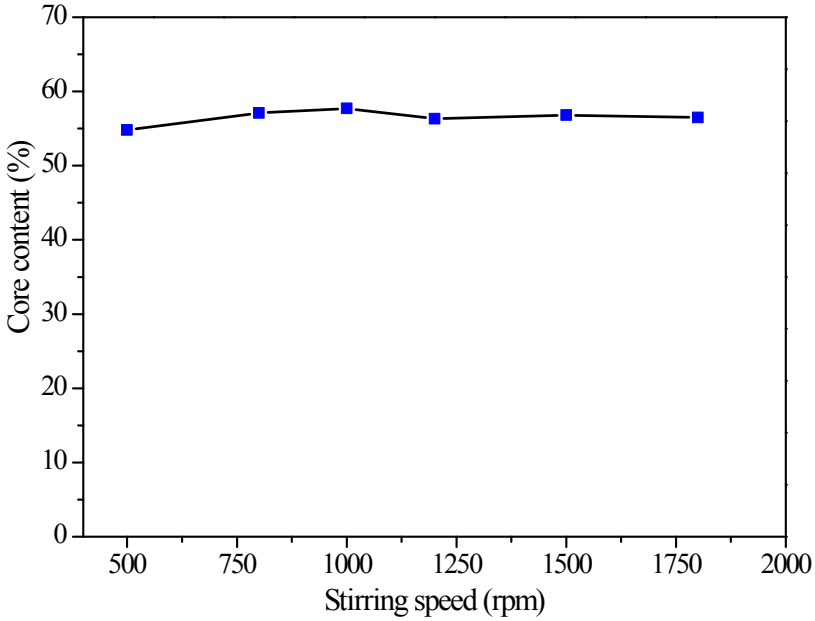

Figure S7 The core content of TTT loaded microcapsules as a function of stirring speed. The microcapsules were made as the same recipe of sample 3 except that the emulsification method was stirring instead of shaking by hand.

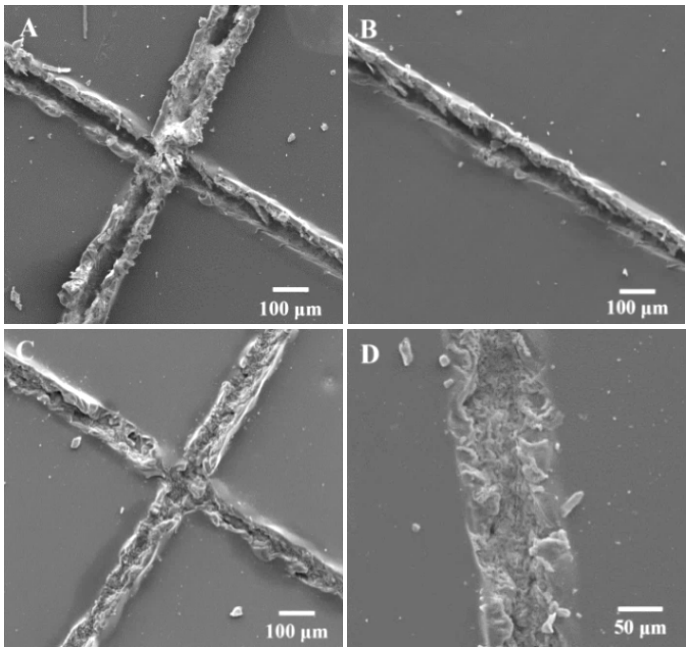

Figure S8 SEM images of TTT loaded microcapsules (sample 6) embedded in cured epoxy coatings with scratched cracks: (A) without any treatment, (B) cracks irradiated under UV for 10 min, (C) cracks irradiated under UV for 10 min after injecting the mixture of TMMP and photoinitiator 184

and (D) the magnification of (C).

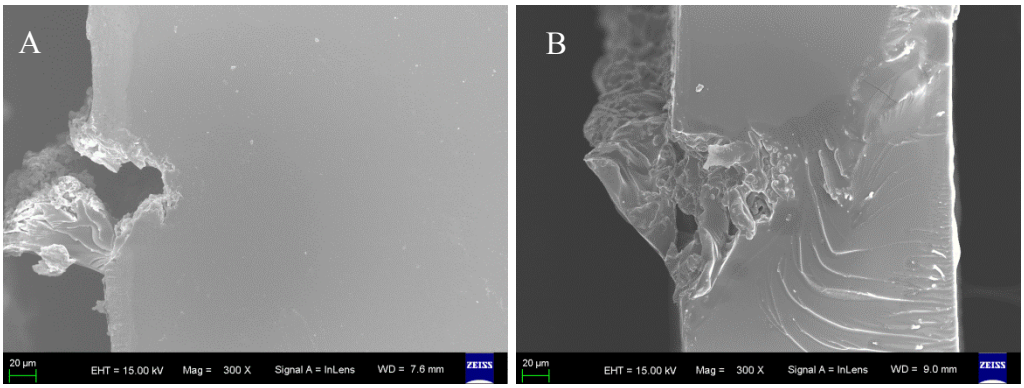

Figure S9 SEM images of the cross section of TTT loaded microcapsules (sample 6) embedded in cured epoxy coatings with scratched cracks: (A) without any treatment and (B) cracks irradiated under UV for 10 min after injecting the mixture of TMMP and photoinitiator 184.

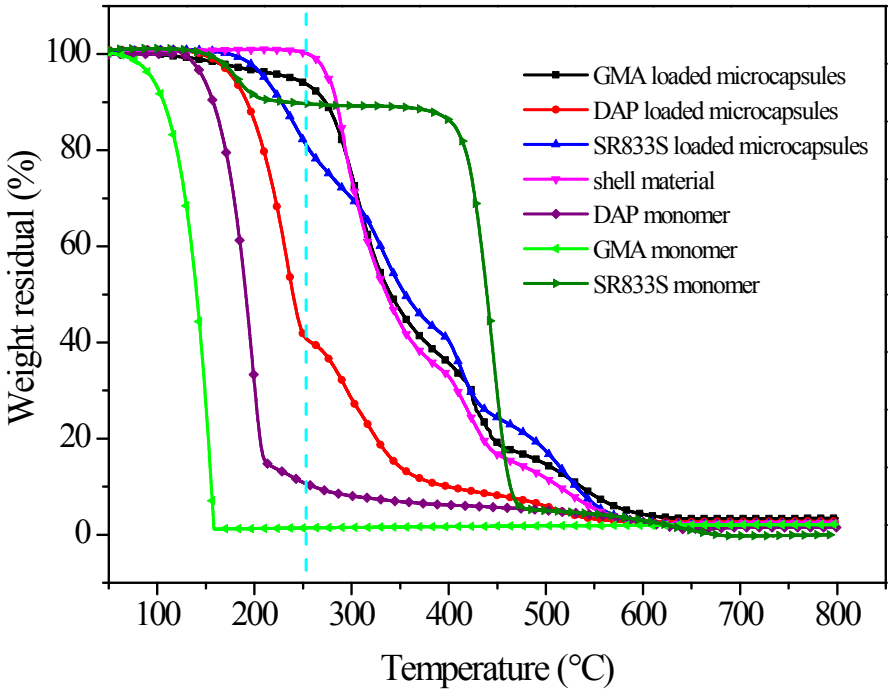

Figure S10 the TGA curves of different core monomers and microcapsules.