

Supporting Information

Robust and durable triboelectric nanogenerators enabled by a mechanically strong and mildly healable polymer

Wei Xu, Hongzhen Liu, Man-chung Wong, Huimin He, Jianhua Hao, Lizhi Xu*

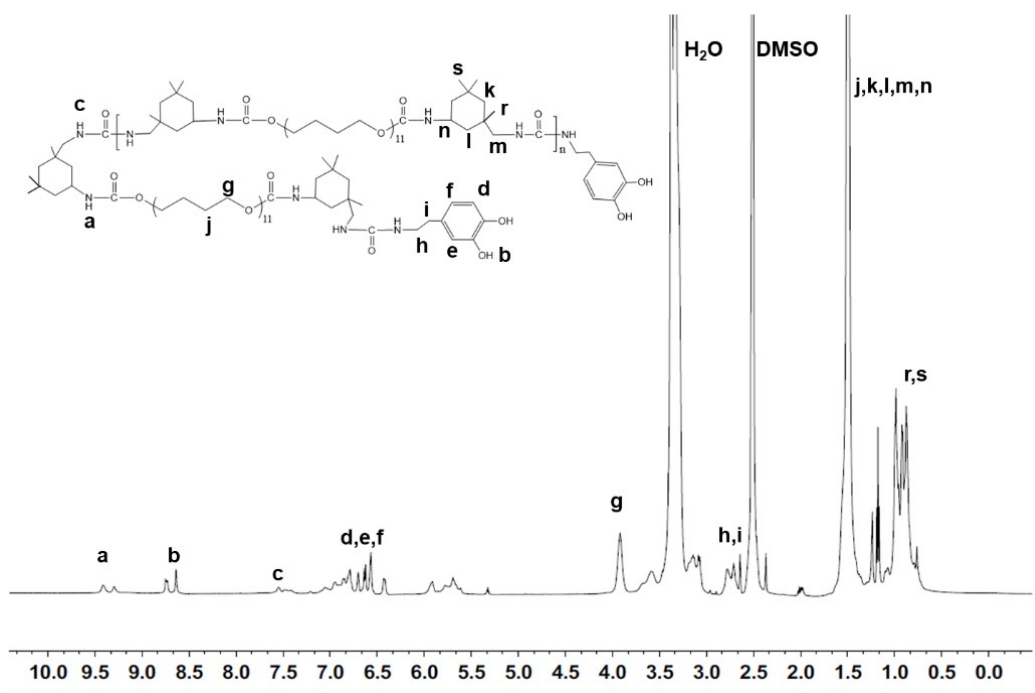


Figure S1. The result of NMR of DA-prepolymer. Here the chemical shifts at 6.5-6.9 ppm and 8.6–8.8 ppm are related to protons on catechol groups. This confirms that catechol groups were successfully introduced into the DA-prepolymer structure. The chemical shifts at 5.6-5.9 ppm belong to protons on RNH₂ from the side reaction between NCO and water.

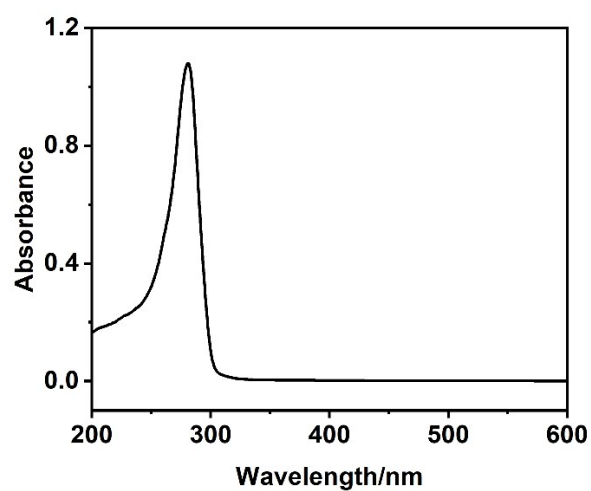


Figure S2. UV-VIS absorption spectroscopy of DA-prepolymer. Here the absorption peak at 280 nm is related to catechol groups.

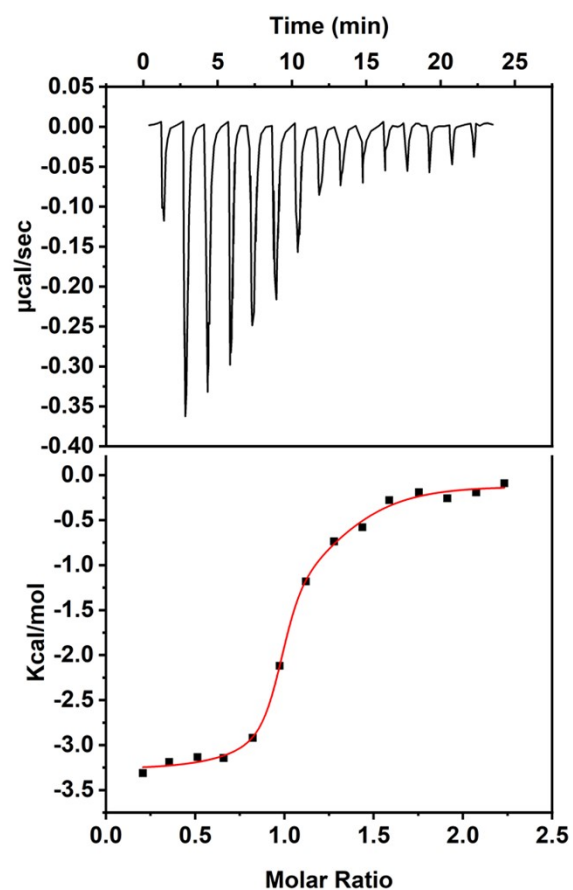


Figure S3. isothermal titration calorimetry (ITC) evaluation on the coordination between calcium ions and catechol. Here K_d is measured as $0.5 \mu\text{M}$.

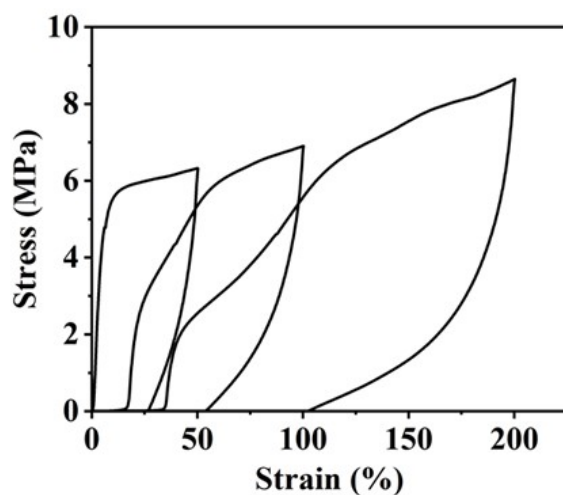


Figure S4. Continuous tensile cycle of THP ($C_{Ca}=28\%$) with gradually increased strain (50%, 100% and 200%).

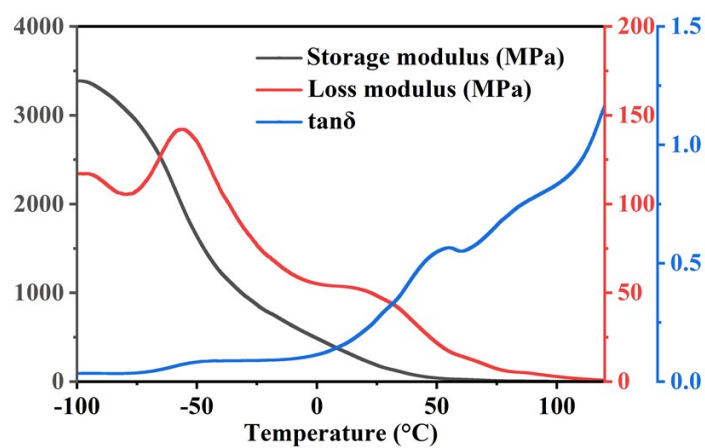


Figure S5. The result of Dynamic Mechanical Analysis (DMA) of THP ($C_{Ca}=28\%$).

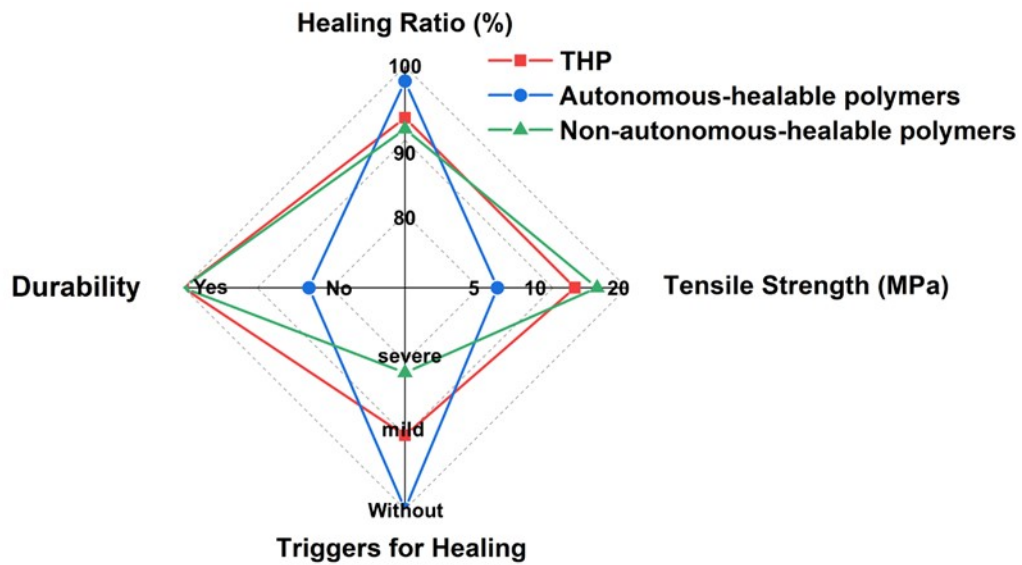


Figure S6. Comparison of the comprehensive performances between THP and other reported healable polymers.

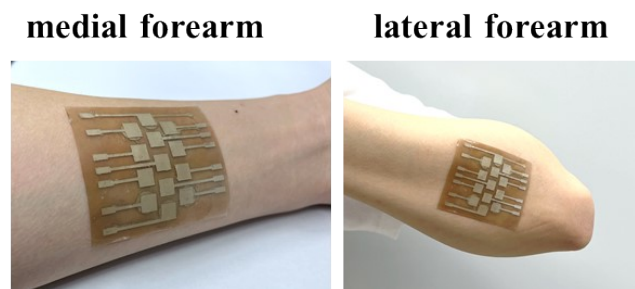


Figure S7. Two THP-TENG-based sensors attached on the medial (left) and lateral (right) forearm.