

Supporting Information

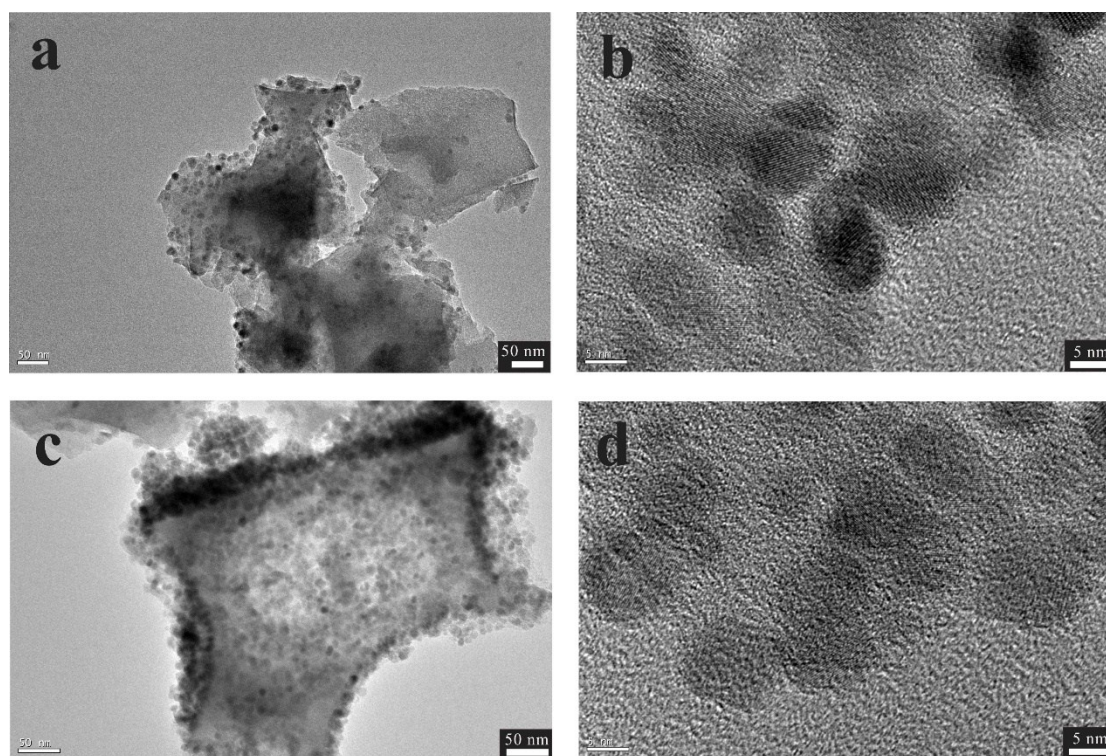


Figure S1 The TEM images of original (a, b) and repaired (c, d) TPU/ Fe_3O_4 NPs composites.

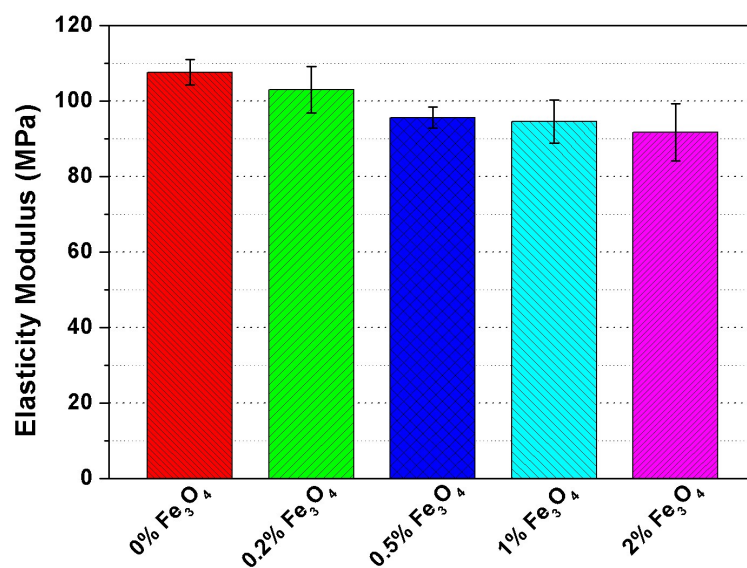


Figure S2 The histogram of elasticity modulus of TPU/ Fe_3O_4 NPs composites with different doping amounts.



Figure S3 Heavy-lifting test for reshaped sample (each weight is 500 g).

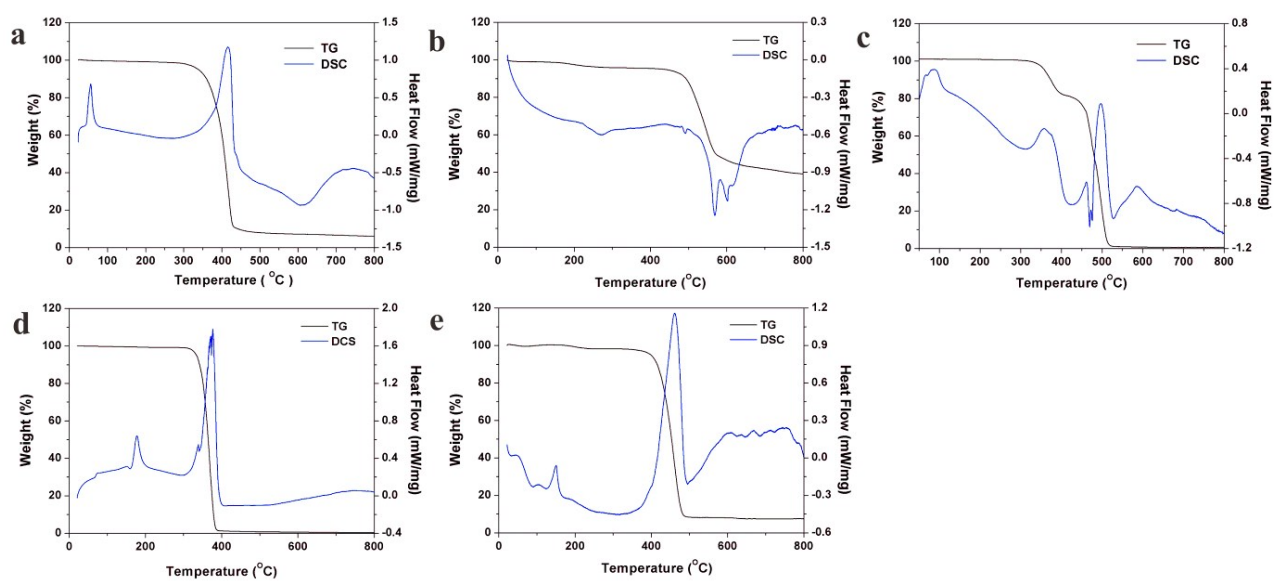


Figure S4 TG and DSC curves of several familiar thermoplastic polymeric materials. (a) TPU, (b) PES, (c) EVA, (d) PLA and (e) PA 12.

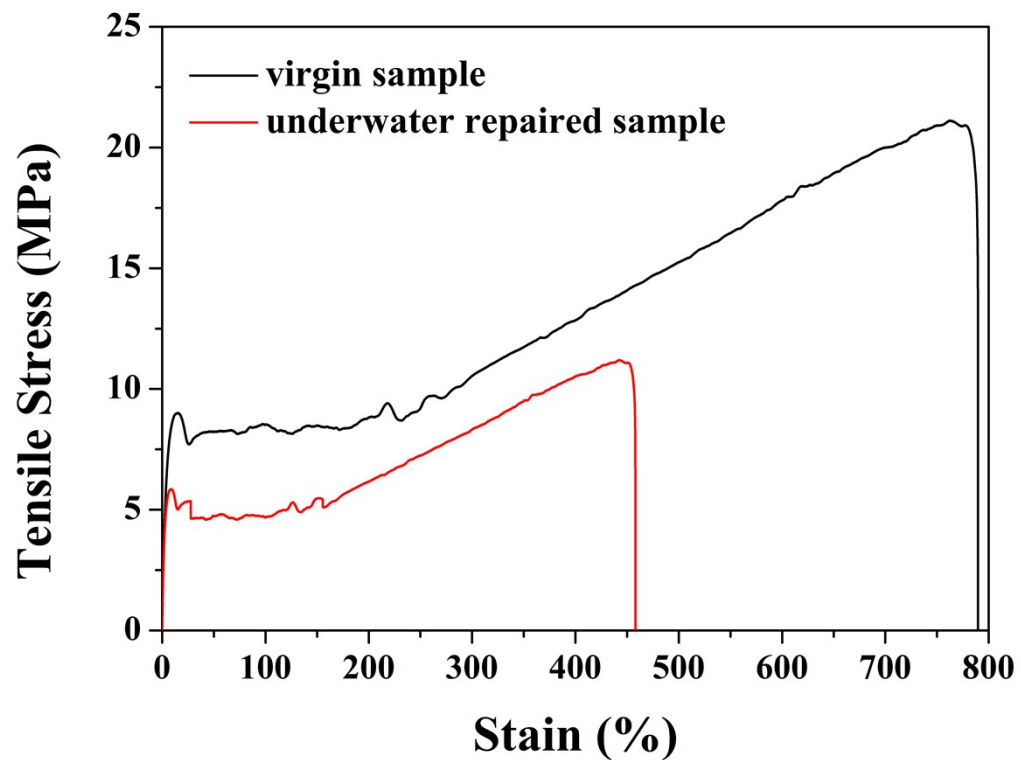


Figure S5 The tensile stress–strain curves of the virgin sample and the underwater repaired sample.

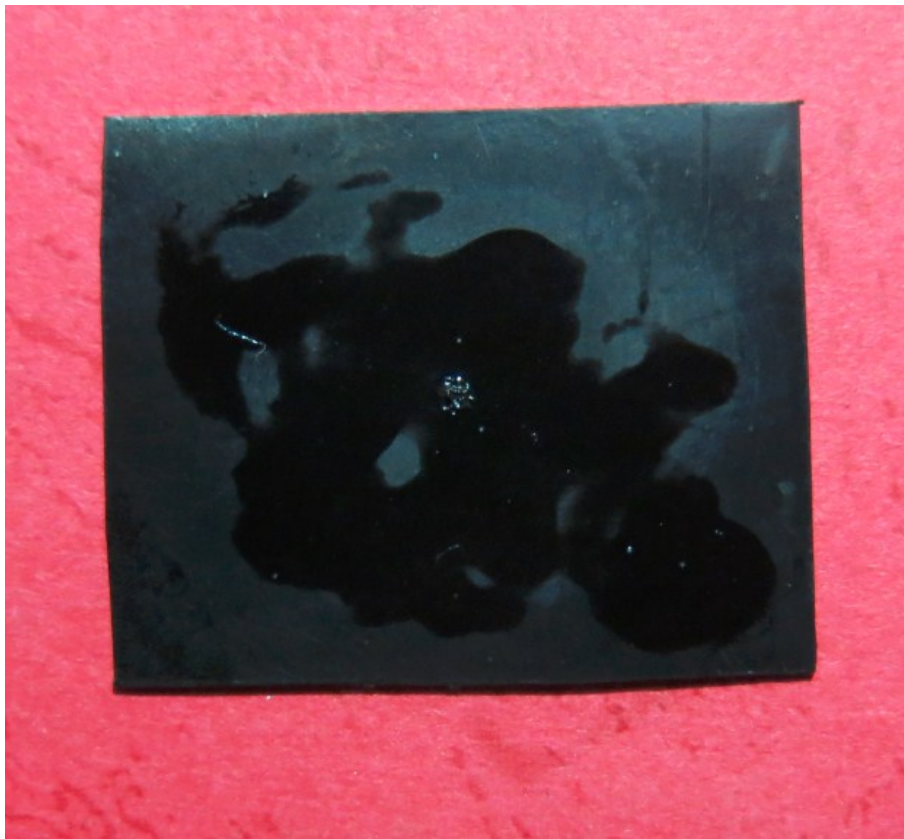


Figure S6 Photograph of the sample after cathodic polarization test.

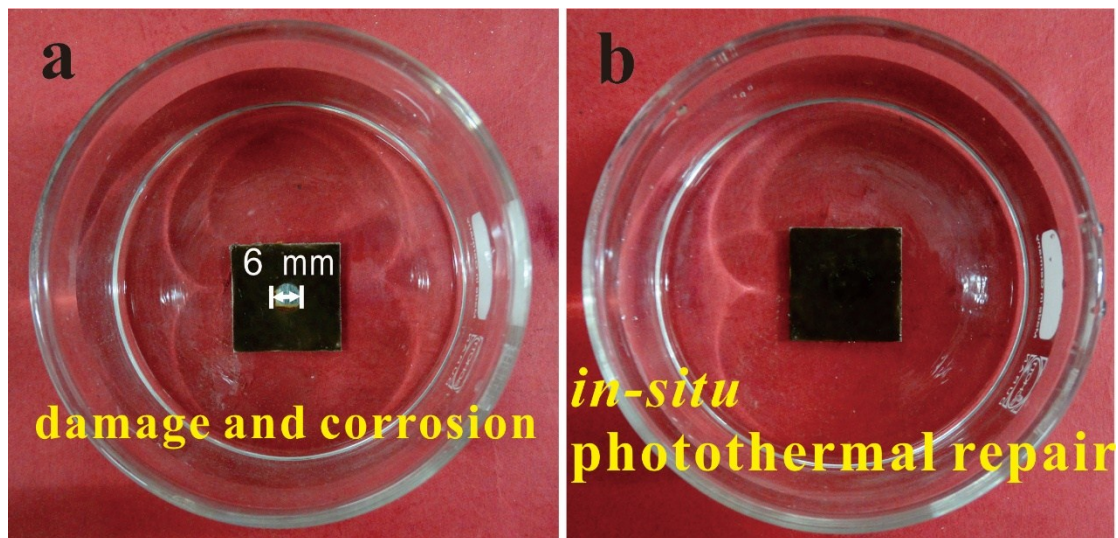


Figure S7 The underwater repair of large area damage for TPU/Fe₃O₄ NPs coating. (a) TPU/Fe₃O₄ NPs coating with large area damage (the diameter of the damage area is about 5 mm), (b) the *in-situ* repaired coating.