Supporting Information

Interfacially Polymerized Self-Healing Organo/ Hydro Copolymer with Shape Memory

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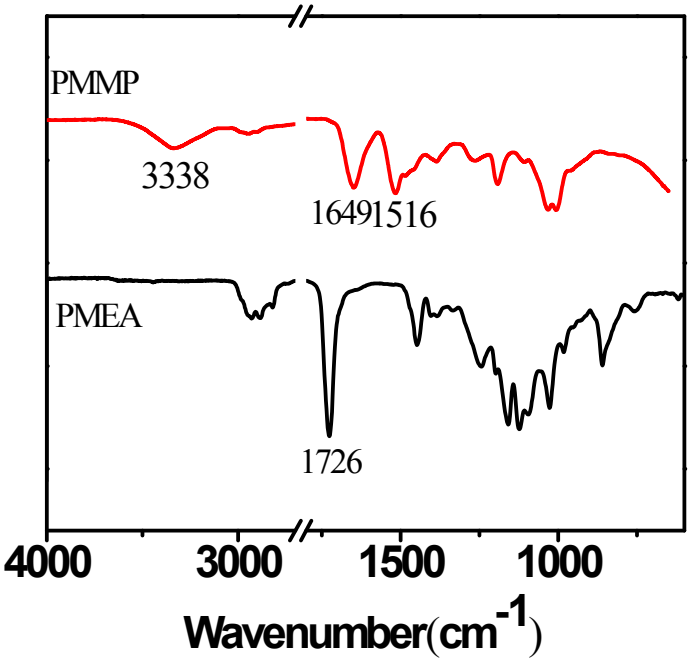

Figure S1. FT-IR spectra of pure PMEA and PMMP polymer.

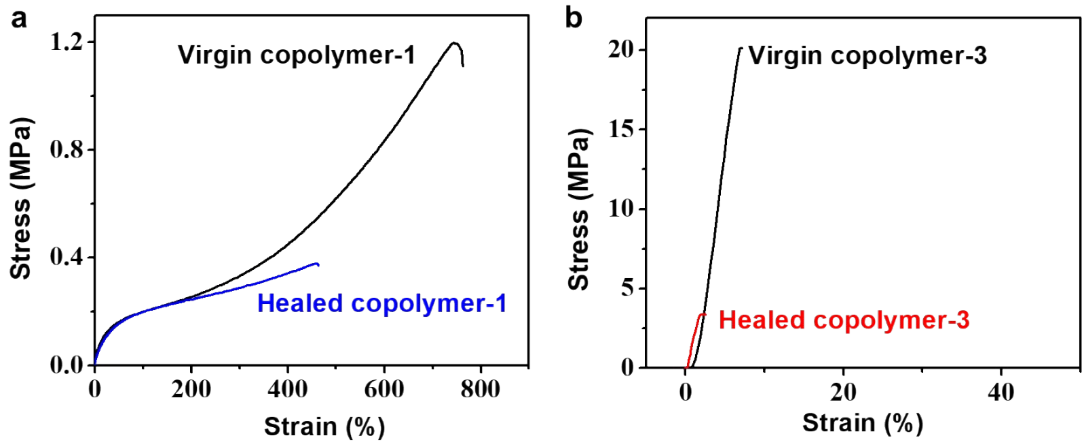

Figure S2. (a) Tensile stress-strain curves of virgin and healed organo/hydro copolymer-1. (b) Tensile stress-strain curves of virgin and healed organo/hydro copolymer-3.

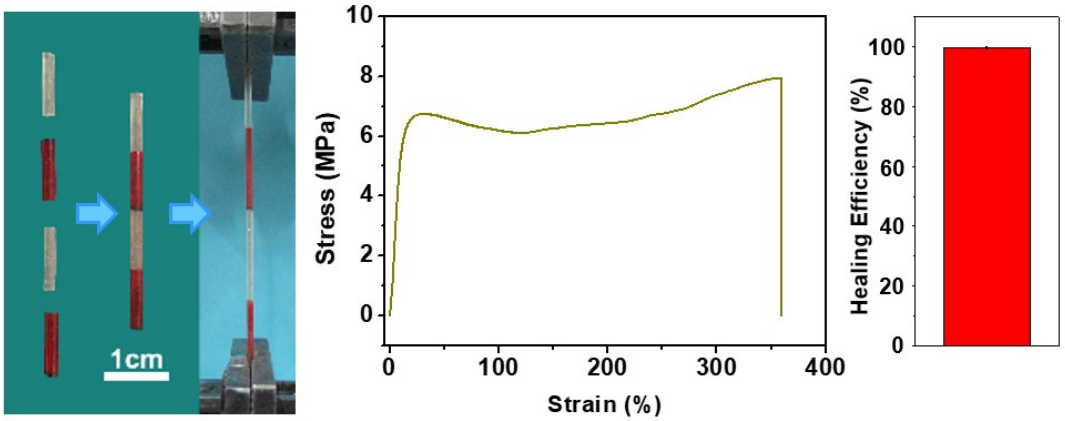

Figure S3. The self-healing effectiveness of four segments of organo/hydro copolymer-2. As expected, the results also demonstrated good mechanical strength (7.9 MPa) and high healing efficiency (99.5%).

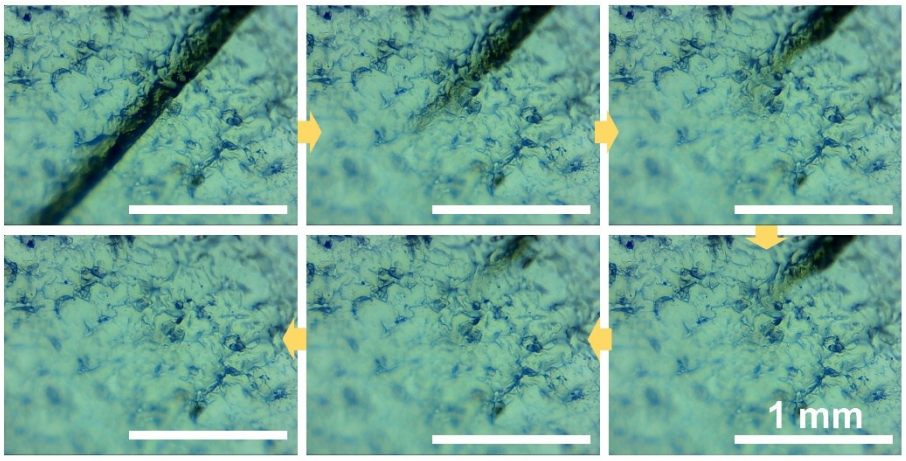

Figure S4. Stereo optical microscopy image of the shape memory assisted self-healing behaviors of organo/hydro copolymer.

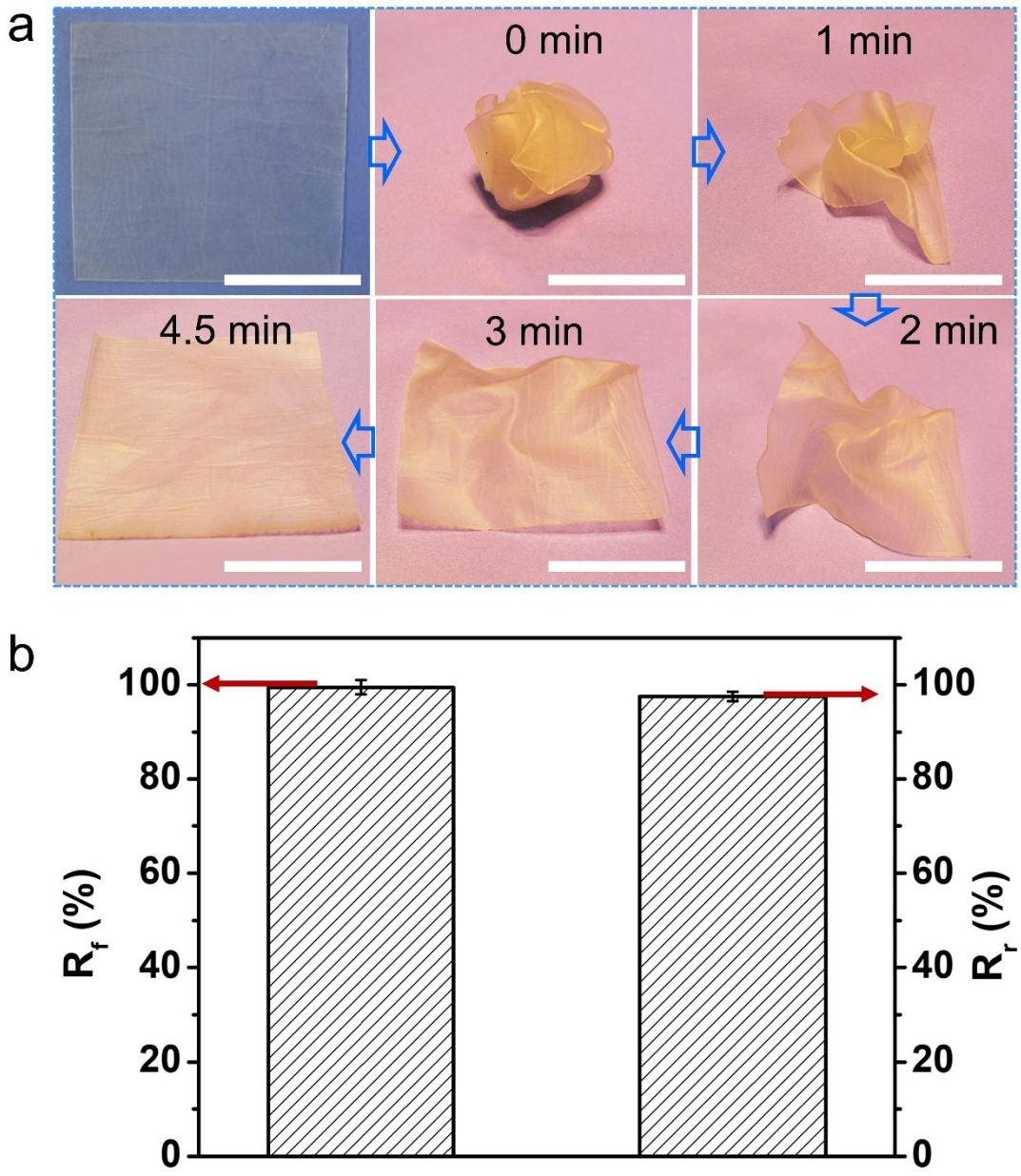

Figure S5. The shape recovery capacity of organo/hydro copolymer-3 at 85 °C. (a) Photograph characterization of the shape recovery capacity of organo/hydro copolymer at 37 °C. Scale bar, 1 cm. (b) The shape fixity (R_f) and shape recovery ratio (R_r) of organo/hydro copolymer-3.

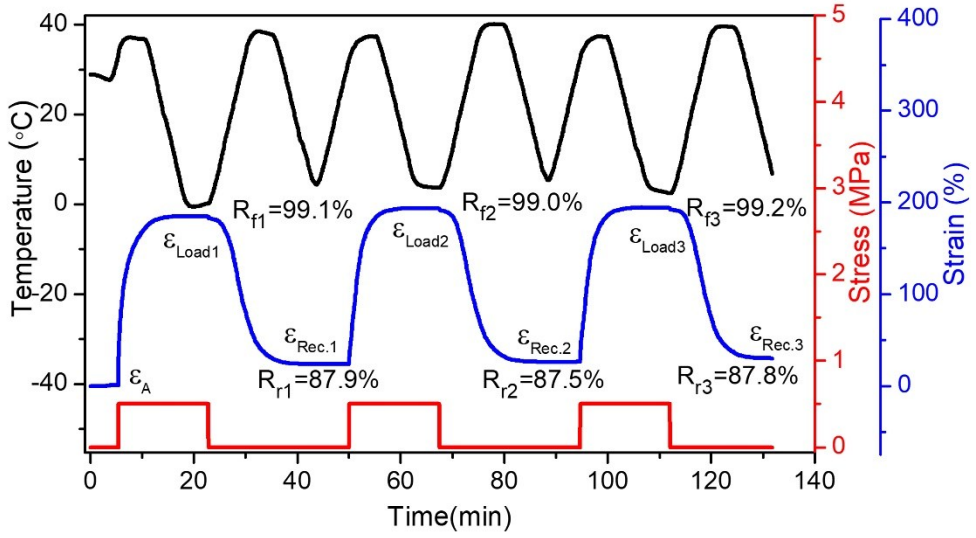

Figure S6. Dynamic mechanical analysis of copolymer-2.

For the DMA analysis, the organo/hydro copolymer-2 was employed, into which the deformation temperature and fixation temperature were 37 °C and 0 °C, respectively. The fixation and recovery ratio were calculated from the following equation,

$$R_f = (\varepsilon_f - \varepsilon_A)/(\varepsilon_{Load} - \varepsilon_A) \times 100\%$$

$$R_r = (\varepsilon_f - \varepsilon_{Rec})/(\varepsilon_f - \varepsilon_A) \times 100\%$$

Where, ε_A is the original strain, ε_{Load} is the maximum strain under load, ε_f is the finally fixed strain without load, and ε_{Rec} is the residual strain after recovering.