Supporting Information

for

In-depth characterization of self-healing polymers based on π–π interactions

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Additional data
Figure S1: $^1$H NMR spectra of P1 and P2 (300 MHz, CDCl$_3$).

Figure S2: SEC-traces of the polymers P1 and P2 (chloroform/isopropanol/triethylamine [94/2/4]) revealing a molar mass of $M_n = 11,400$ g/mol for P1 and $M_n = 17,400$ g/mol for P2.
Figure S3: TGA analysis of P1 and P2 (heating rate 20 Kmin⁻¹).

Figure S4: Temperature dependent IR spectra of P2 drop casted on KBr in the C=C (1570–1605 cm⁻¹) and C=O stretching region (1640–1710 cm⁻¹). During heating, slight shifts in the position of all bands (1578 cm⁻¹: +0.2 cm⁻¹; 1595: −1.5 cm⁻¹; 1655 cm⁻¹: +0.4 cm⁻¹; 1696: +1.6 cm⁻¹). These shifts are partially reversed while cooling the
polymer, indicating a reversible cause for the shifts. Additionally, all bands exhibit broadening during heating, especially noticeable at 150 °C, indicating a broader distribution of species contributing to the IR spectrum.

**Figure S5**: Self-healing of scratch two of P1 at 150 °C for 18 h.

**Figure S6**: Self-healing of scratch three of P1 at 80 °C for 18 h and additional 18 h.
**Figure S7:** Analysis of the scratch of P2 after indentation.

**Figure S8:** Self-healing of scratch three of P1 at 125 °C for 18 h.