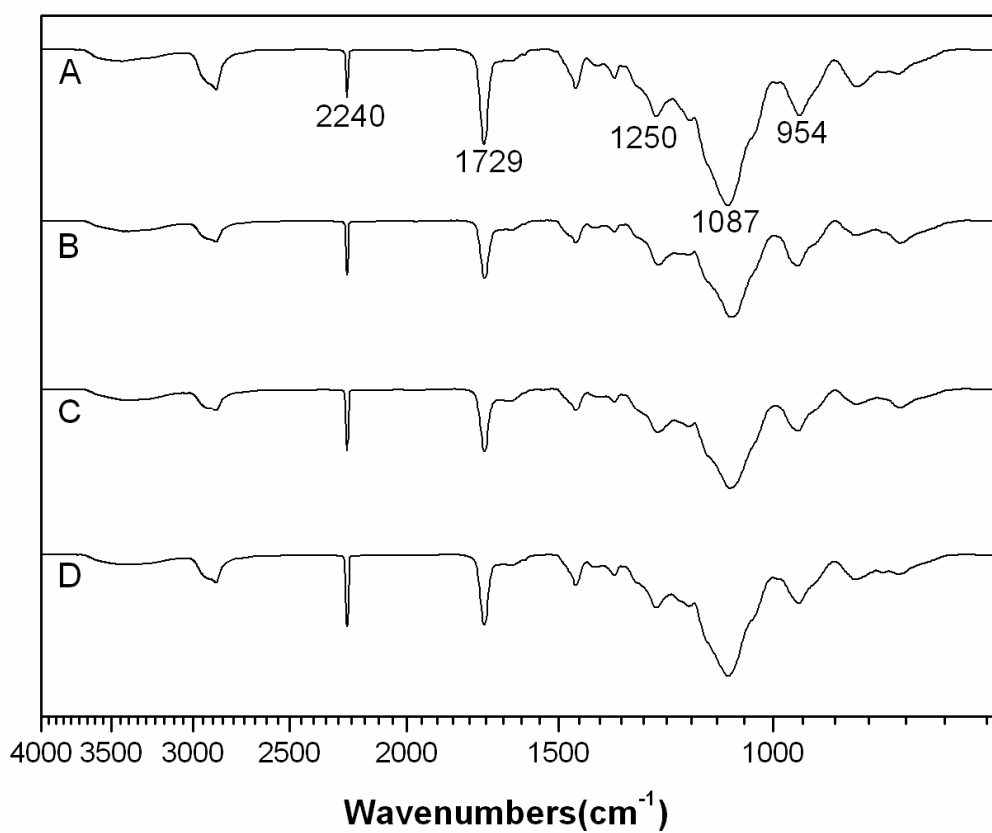


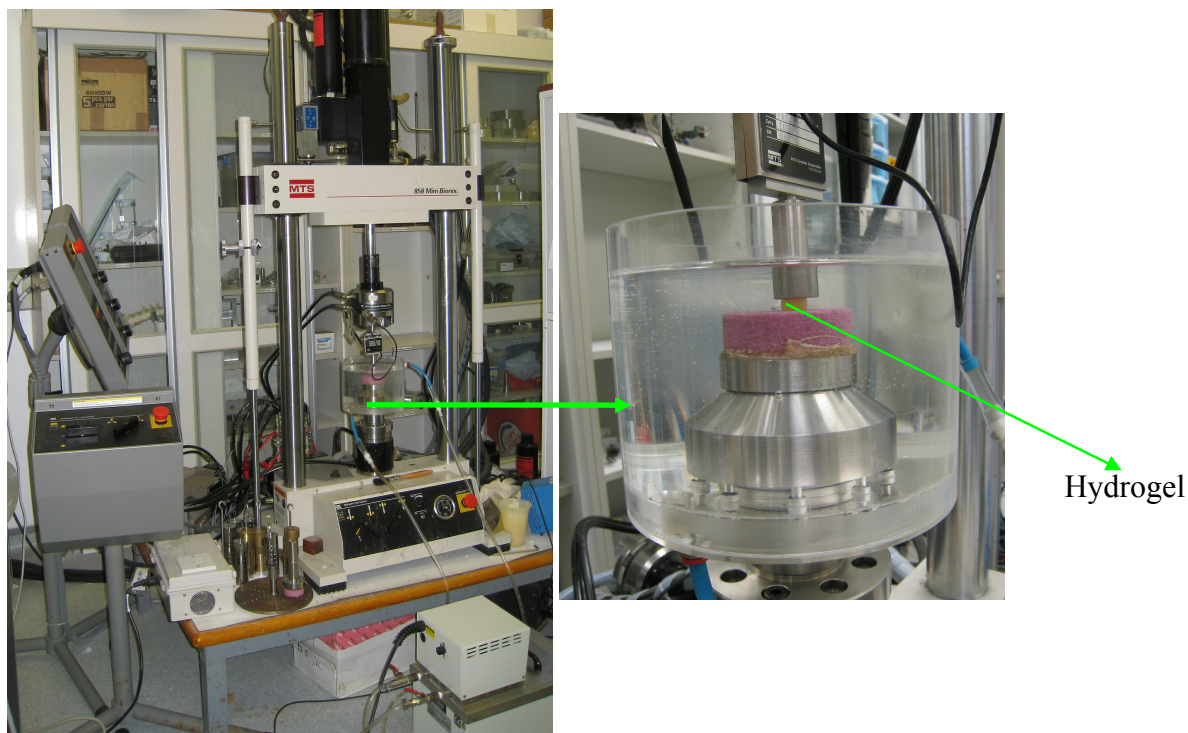
Supplementary Material (ESI) for Soft Matter

Supplementary Figure 1. ATR-FTIR spectra of copolymer hydrogels.

A: PAN/PMPC-20-6-0.5; B: PAN/PMPC-20-7-0.5; C: PAN/PMPC-20-8-0.5; D: PAN/PMPC-20-9-0.5



Supplementary Figure 2. Setup for cyclic compression testing of hydrogel samples immersed in PBS at 37 °C.



Supplementary Figure 3. Biodegradation of PAN/MPC-20-6-3.5 in DTT solution.

Three pieces of 50-100 mg of hydrogel samples were placed into 5 mL 10 mM PBS buffer (pH=7.4) containing 50 mM dithiothreitol (DTT) at 37 °C with continuous N₂ flushing to remove oxygen. At different time intervals, each sample was taken out and weighed after the surface water was carefully blotted off. The percent residual mass of hydrogels was calculated according to the equation: $\text{Residual mass\%} = W_t/W_0 \times 100\%$. Where W_0 is the initial weight of the hydrogel; W_t is the weight of the hydrogel at each time point.

