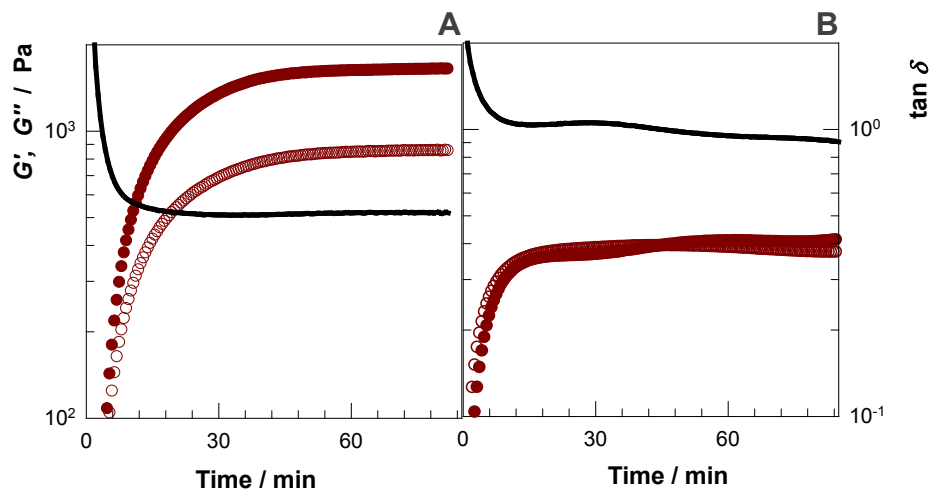# Self-healing polyacrylic acid hydrogels

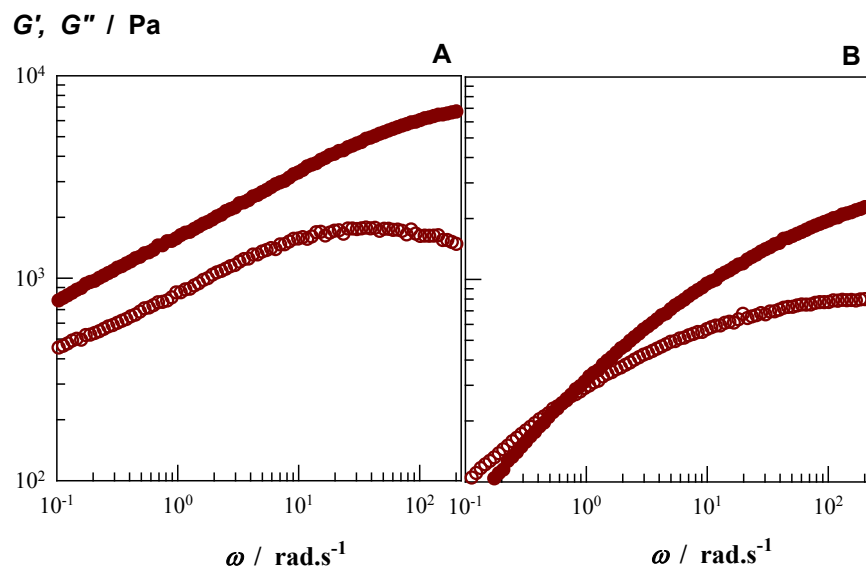*Umit Gulyuz and Oguz Okay*
Department of Chemistry, Istanbul Technical University, 34469 Istanbul, Turkey
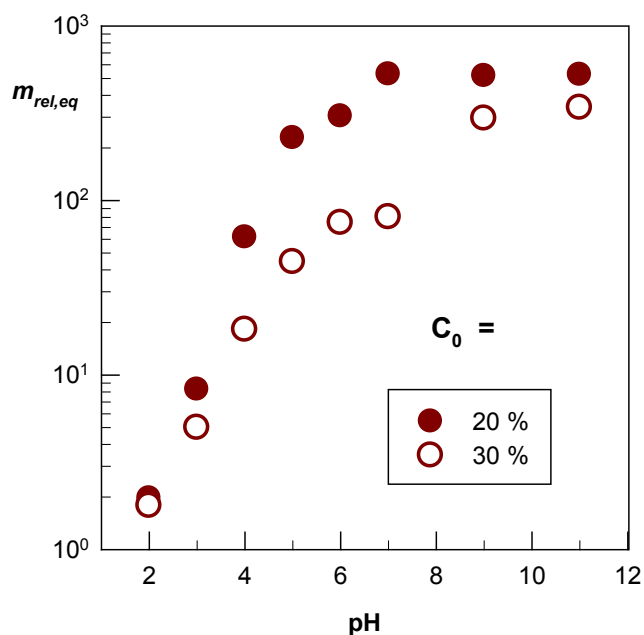
Supporting Information


Figure S1. G' (●), G'' (○) and tan δ (lines) during the micellar polymerization of AAc with (A) and without C18 (B) at 50°C shown as a function of the reaction time. C18 = 2 mol %. C_o = 15 w/v %. ω = 6.28 rad/s. γ_o = 0.01.

Figure S2. G' (●) and G'' (○) of PAAc hydrogels with (A) and without C18 (B) shown as a function of frequency ω. Temperature = 25°C. γ_o = 0.01. C_o = 15 w/v %.
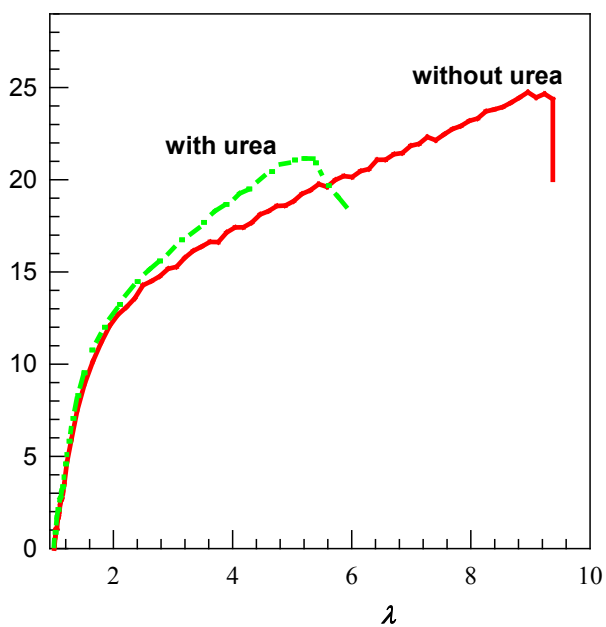
Figure S3. Equilibrium weight swelling ratios $m_{rel,eq}$ of PAAc hydrogels formed using 2 mol % C18 as a physical cross-linker shown as a function of pH of the external solution. $C_0 = 20$ (●) and 30 w/v % (○).
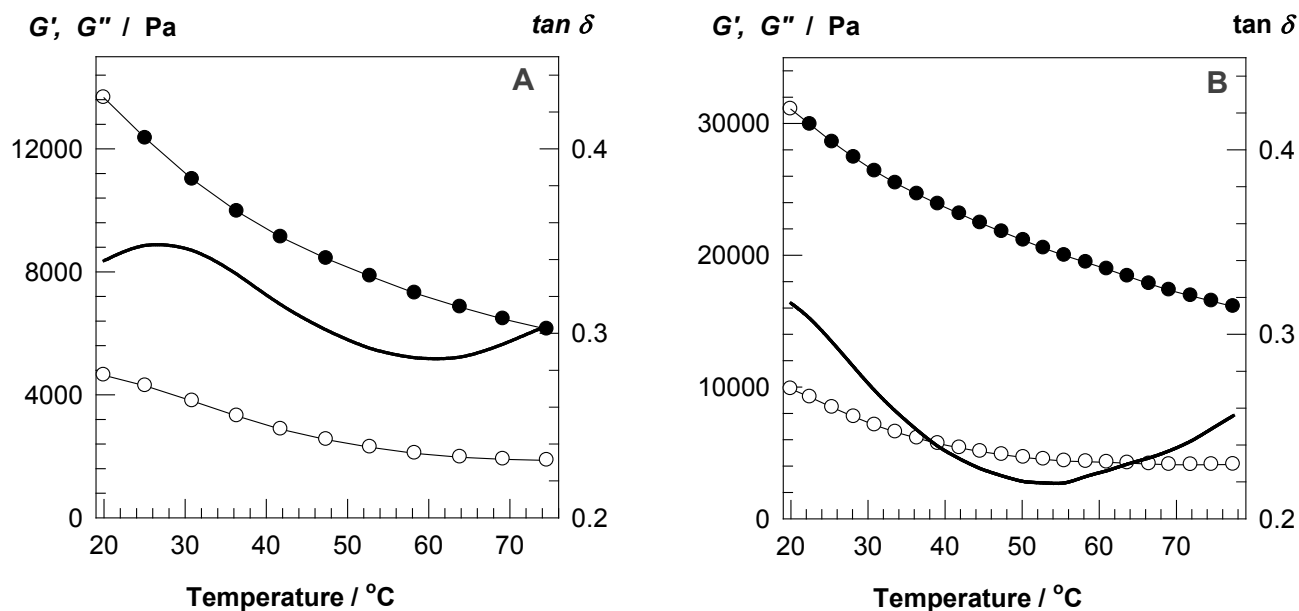
Figure S4. G' (●), G'' (○) and tan δ (lines) of PAAc hydrogels shown as a function of the temperature. $\omega = 6.28$ rad/s. $\gamma_o = 0.01$. $C_0 = 20$ (A) and 30 w/v % (B).

2

σ_{nom} / **kPa**

Figure S5. Stress-strain curves of the healed gel samples without (solid curve) and with immersion into a 30 % urea solution for 1 min (dashed curve). $C_0 = 20$ w/v %. Healing time = 30 min. Healing temperature = 23°C.