Supporting information

Polyelectrolyte-Containing Copolymer with Gas Switchable Lower Critical Solution Temperature-Type Phase Transition

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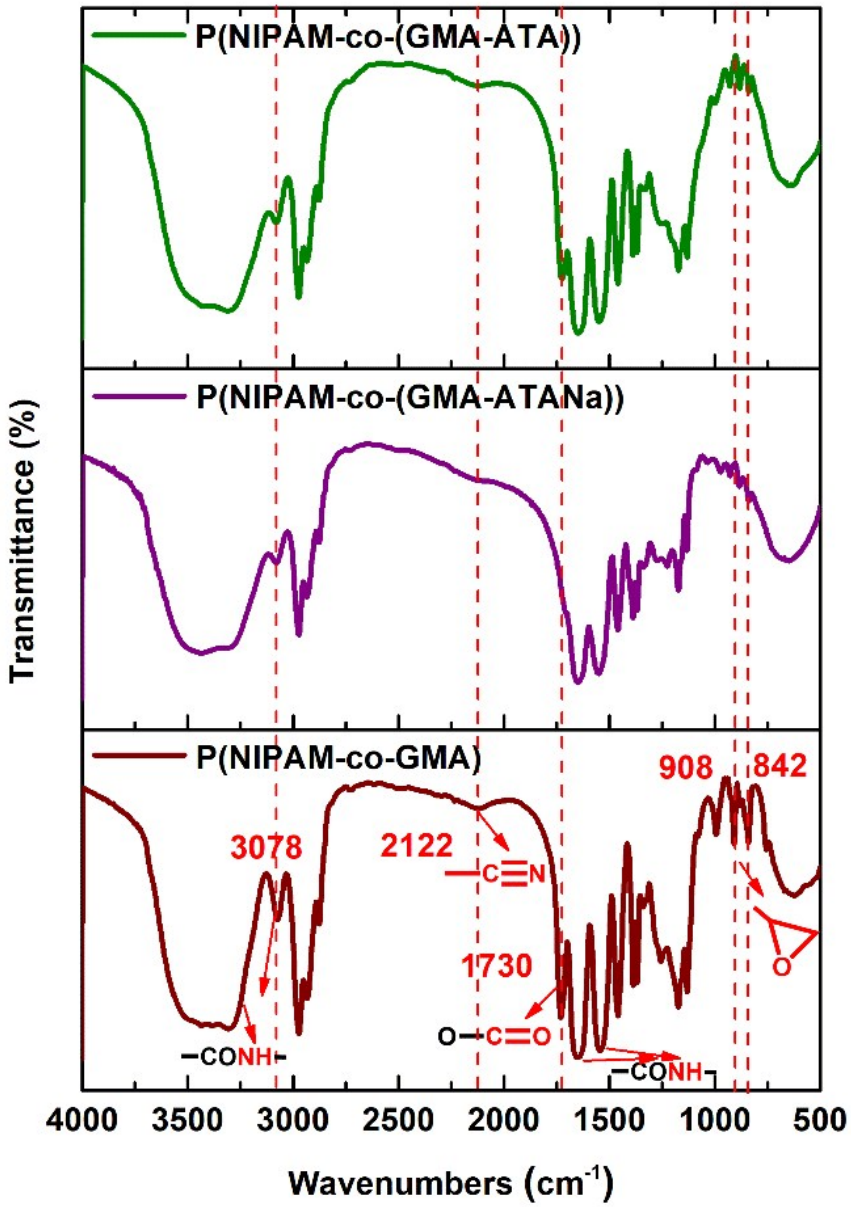

Figure S1. FT-IR spectra of P(NIPAM-co-GMA), P(NIPAM-co-(GMA-ATANa)) and P(NIPAM-co-(GMA-ATA)).

First of all, a stretching vibration absorption band of nitrile group at 2122 cm^{-1} was assigned to the RAFT agent, and the characteristic peaks of secondary amide (-CONH-) group of PNIPAM located at 3350 (broad), 3078, 1645, 1550 cm^{-1} were identified in all the spectra. Compared to the FT-IR spectrum of P(NIPAM-co-GMA), the characteristic absorption bands of epoxy group stretching vibration at 908 and 842 cm^{-1} were not detectable after post-polymerization functionalization, indicating a successful ring-opening reaction.[1,2] Additionally, due to the incorporation of triazole ring, the ester group stretching vibration located at 1730 cm^{-1} was included into the absorption band

of -CONH-. Unfortunately, the characteristic absorption bands of triazole ring at 1640 and 1560 cm^{-1} were overlapped by the signals of PNIPAM.

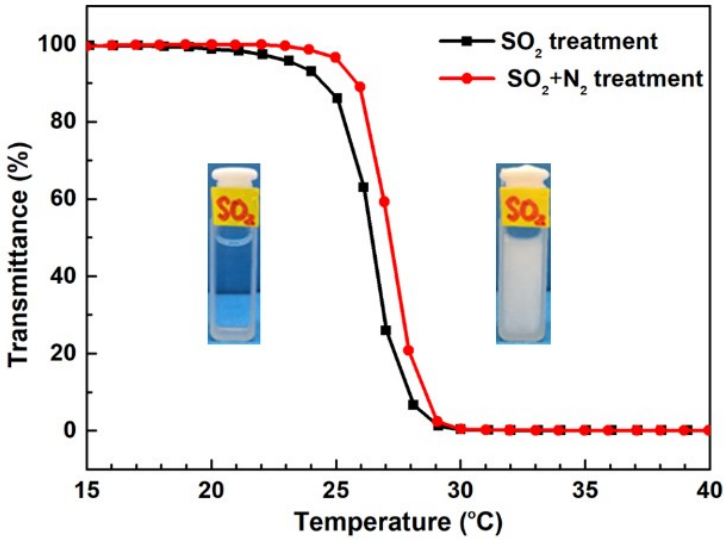

Figure S2. Temperature dependent transmittance curves of P(NIPAM-co-(GMA-ATANa)) aqueous solution after 5 min SO_2 bubbling and its reversibility based on N_2 bubbling (40 h).

References

(1) J. Zhu, L. Wu, Z. Bu, S. Jie and B.-G. Li, Ind. Eng. Chem. Res., 2017, 56, 10155-10163.

(2) S. Ü. Çelik, Ü. Akbey, A. Bozkurt, R. Graf and H. W. Spiess, Macromol. Chem. Phys., 2008, 209, 593-603.