

Electronic Supplementary Information

Soft Matter manuscript

‘Aqueous Foams Stabilized by Temperature-Sensitive Hairy Polymer Particles’

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PDEA chain occupied molecular area at the particle surface

For the calculation of PDEA chain occupied molecular area at the particle surface, the values shown below were used: a diameter of PDEA-PS particles, 410 nm; PDEA loading on the PDEA-PS particles, 2.78 wt%; a molecular weight of PDEA hair ($n=60$), 11100; a density of PS, 1.06 g/cm³. Weight and surface area of single PDEA-PS particle are calculated to be 3.83×10^{-14} g and 5.28×10^{-13} m², respectively. Weight and number of PDEA hairs in the PDEA-PS particle are calculated to be 1.06×10^{-15} g and 57651. These values lead to PDEA chain occupied molecular area at the particle surface and square root of the occupied molecular area of 9.16 nm² and 3.03 nm, respectively.

Calculation for diameter of gyration of the PDEA hair

The diameter of gyration of the PDEA hair was calculated using the equation shown below,

$$D = 2\sqrt{\frac{na^2}{6}}$$

where n and a are bond number and bond length, respectively.

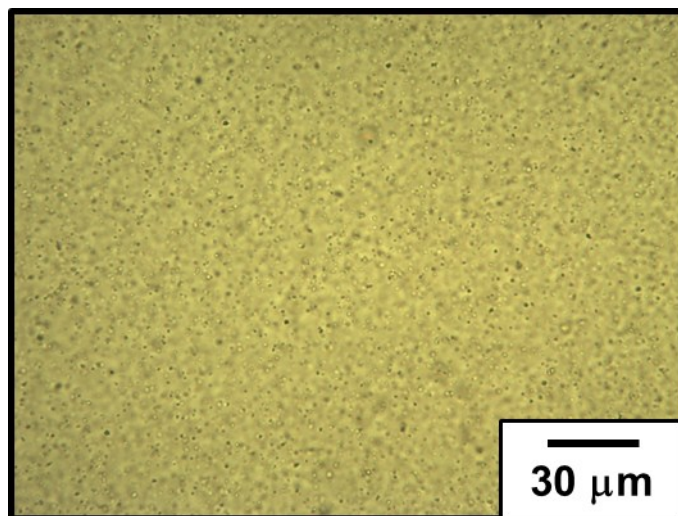


Figure S1. OM image of PDEA-PS particles dispersed in aqueous buffer (pH 4.01) at 25 °C.

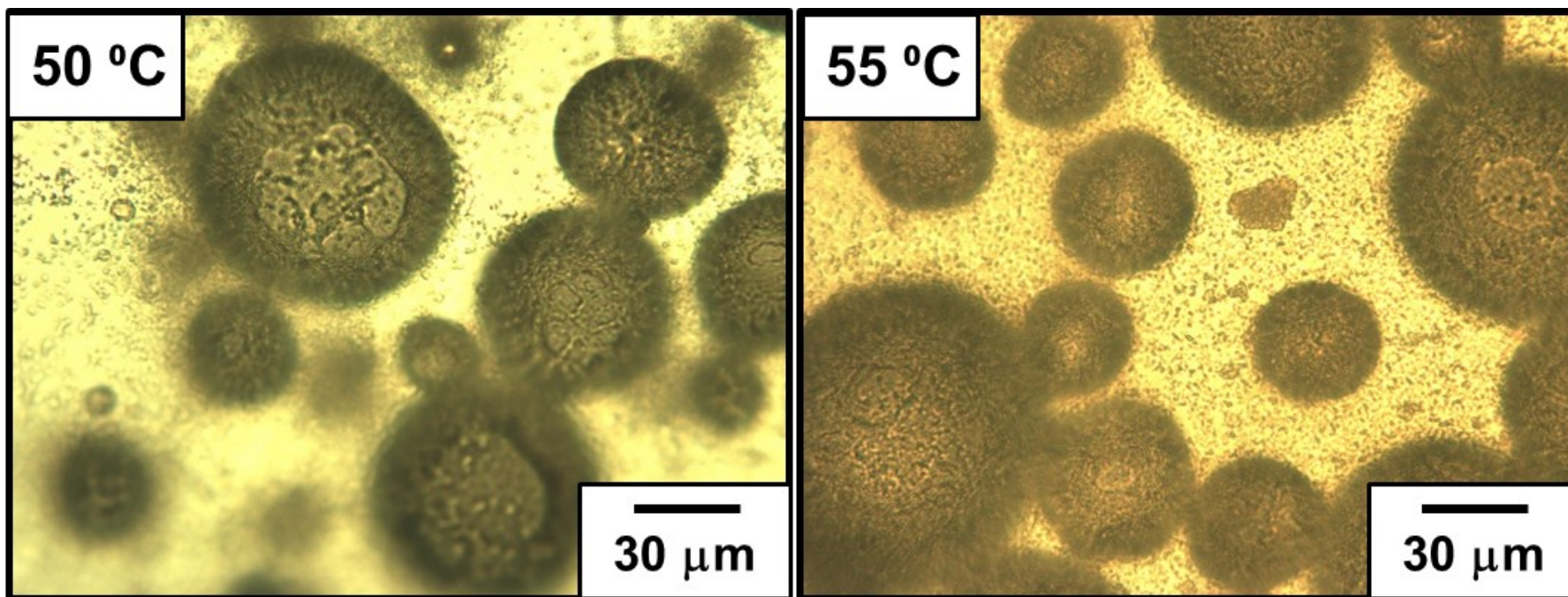


Figure S2. OM images of foams stabilized with PDEA-PS particles (10 wt%, pH 6.86) prepared at temperatures of 50 °C and 55 °C. Flocs can be observed in aqueous media and on the bubble surfaces.