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/cm$^3$. Weight and surface area of single PDEA-PS particle are calculated to be $3.83 \times 10^{-14}$ g and $5.28 \times 10^{-13}$ m$^2$, respectively. Weight and number of PDEA hairs in the PDEA-PS particle are calculated to be $1.06 \times 10^{-15}$ 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 nm$^2$ 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,

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

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.