frontiers

Supplementary Material

pH-Responsive aqueous bubbles stabilized with polymer particles carrying poly(4-vinylpyridine) colloidal stabilizer

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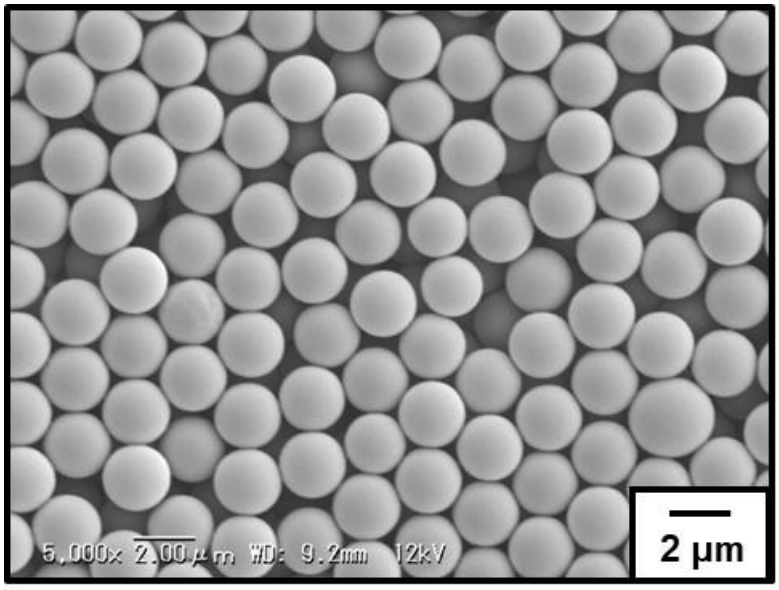
Gel-permeation chromatography (GPC)

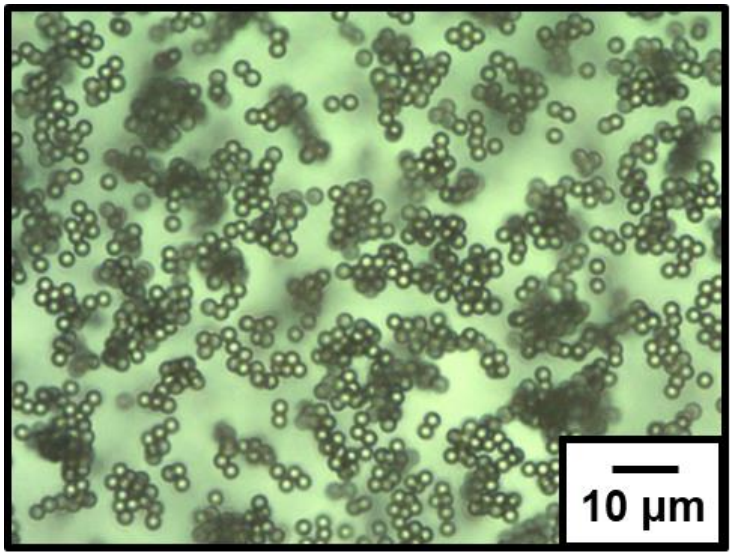
GPC measurement was carried out for P4VP homopolymer with a Jasco UV-2075 detector equipped with a Shodex OHpak SB-804 HQ column working at 40 ˚C with a flow rate of 0.6 mL/min. An acetic acid (0.5 M) solution containing sodium sulfate (0.3 M) was used as the eluent. Number-average molecular weight (M_n) and molecular weight distribution (M_w/M_n) were calibrated using standard poly(2-vinylpyridine) samples.

Digital camera

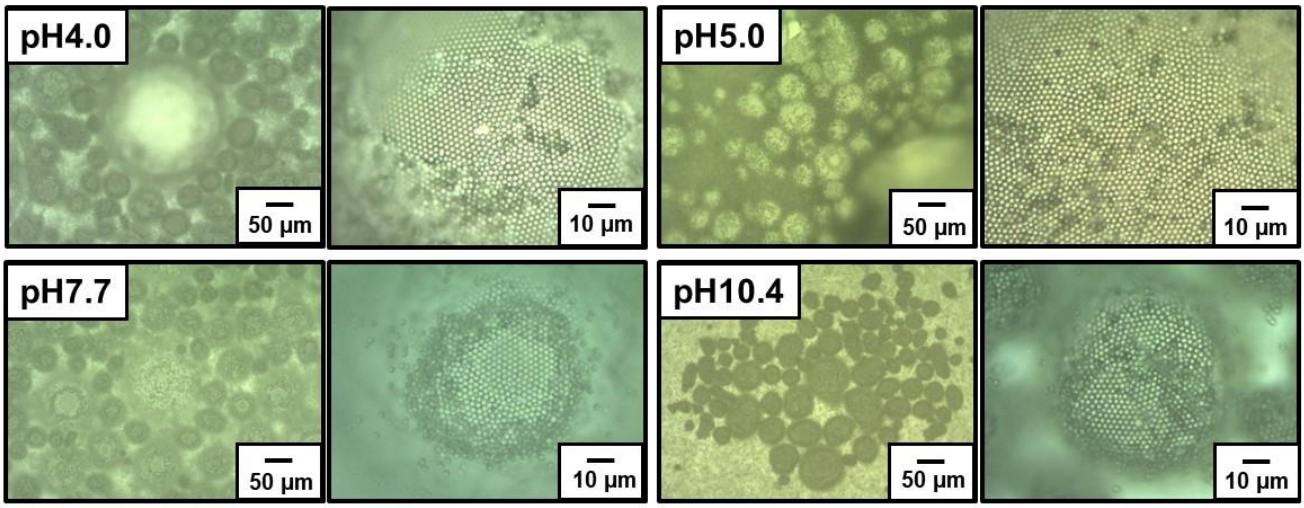
Optical photographs of the samples were taken using a digital camera (GX200, Ricoh).



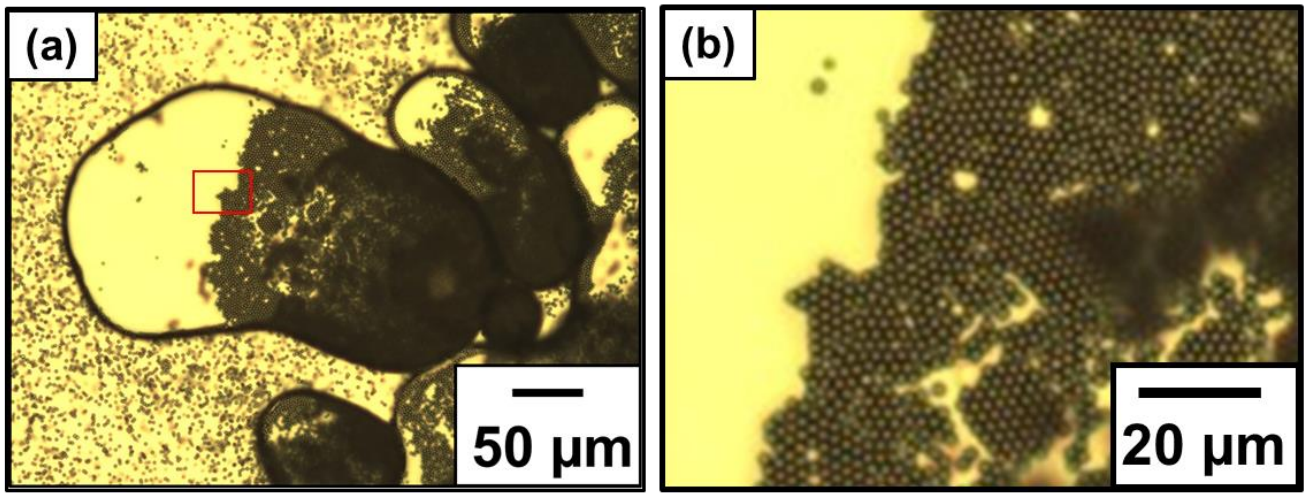
Supplementary Figure 1. SEM image of the P4VP-PS particles used in this study.



Supplementary Figure 2. Optical micrograph of aqueous dispersion of P4VP-PS particles observed at pH 4.0.



Supplementary Figure 3. Optical micrographs of bubbles stabilized with P4VP-PS particles at pH 4.0, 5.0, 7.7 and 10. Right side images are magnified images of left side images.



Supplementary Figure 4. (a) Optical micrograph of a crushed air bubble. (b) Magnified image of the area shown in (a).