Electronic Supplementary Material (ESI) for Soft Matter.

Supplementary Information for

"Dynamics and mechanism of liquid film collapse in a foam"

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(Supplementary Movie 1) The enlarged movie of liquid film collapsing process during the CBC in 14 wt% TTAB solution from time t = 0 ms to t = 3.91 ms for ϕ = 0.0090 and h = 2.1 mm.
This movie is same as figures 2(a)~(f) in the main manuscript.

(Supplementary Movie 2) The enlarged movie of RVPB oscillation from time t = 0 ms to t = 4.78 ms for ϕ = 0.012 and h = 2.1 mm.
Here RVPB is not migrated and stays at the same position. This movie is same as figures 3(a)~(e) in the main manuscript.

(Supplementary Movie 3) The enlarged movie of vertical PB oscillation from time t = 0 ms to t = 5.65 ms for ϕ = 0.0047 and h = 2.1 mm.
It is found that the liquid aggregating at the center of vertical PB starts to relax and flow to the upper or lower PB after some critical time.

(Supplementary Movie 4) The enlarged movie of liquid film collapsing process during the CBC from time t = 0 ms to t = 13.1 ms for ϕ = 0.0097 and h = 1.1 mm.
It is found that the collapse front becomes flat earlier and droplets are emitted diagonally to the direction of the liquid film.

(Supplementary Movie 5) The enlarged movie of liquid film collapsing process during the CBC in a three-dimensional foam from time t = 0 ms to t = 3.0 ms for ϕ = 0.0075 and h = 9.1 mm.
Several bubbles are contained in the thickness direction. It is found that the collapse of the liquid

film and the droplet formation are observed.

(Supplementary Movie 6) The enlarged movie of liquid film collapsing process during the CBC in 0.24 wt% TTAB solution from time t = 0 ms to t = 3.04 ms for ϕ = 0.0056 and h = 2.1 mm.

(Supplementary Movie 7) The enlarged movie of liquid film collapsing process during the CBC in 2 wt% $C_{10}E_3$ solution from time t = 0 ms to t = 3.91 ms for ϕ = 0.023 and h = 2.1 mm.

(Supplementary Movie 8) The enlarged movie of RVPB oscillation in 25 wt% aqueous solution of household detergent from time t = 0 ms to t = 10.9 ms for ϕ = 0.0039 and h = 2.1 mm.

(Supplementary Movie 9) The enlarged movie of liquid film bursting and RVPB oscillation inside the foam in 0.24 wt% TTAB solution from time t = 0 ms to t = 3.91 ms for ϕ = 0.0087 and h = 2.1 mm.

All these supplementary movies are taken by using a high speed camera with the frame rate 23000 fps.