

FOAMSCOPE™

Shampoo Foam Analysis

Objective

Characterize the foam structure directly during shampoo application and monitor its short-term evolution under realistic use conditions.

Measurement

FOAMSCOPE™ is placed directly in the shampoo foam on the hair immediately after application, allowing the foam structure to be monitored in situ during use.



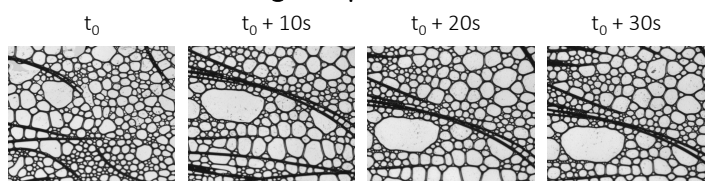
Sample	Shampoo
Camera settings	Exposure: 4.30ms - Gain: 0dB
Capture settings	Frequency: 5fps - Time: 30sec

Key analysis parameters

FOAMSCOPE metric	Information provided
Bubble count	Evolution of the bubble population within the foam
D50	Characteristic bubble size and evolution of foam fineness

FOAMSCOPE™ enables shampoo foam evolution to be monitored directly on the hair under realistic use conditions

Foam structure images capture



t_0 — Initial foam structure

Dense population of predominantly small bubbles surrounding the hair fibers.

$t_0 + 10\text{ s}$ — Early evolution

Reduction of the fine bubble population with progressive increase in bubble size.

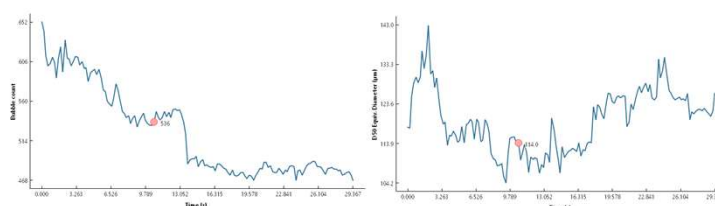
$t_0 + 20\text{ s}$ — Structural evolution

Larger bubbles become increasingly prominent while the number of small bubbles decreases.

$t_0 + 30\text{ s}$ — Advanced evolution

Coarser bubble structure with fewer fine bubbles remaining around the hair fibers.

Foam structure analysis

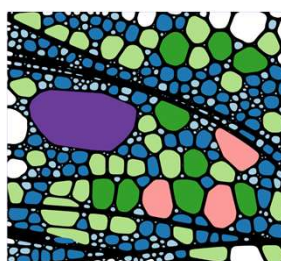


Apparent Bubble Count ↓

Overall decrease reflects the progressive loss of the initial fine bubble population.

Apparent D50 — dynamic evolution

Variations in D50 reflect changes in the detected bubble size distribution during application.



Hair fibers can intersect bubble contours and occasionally split a single bubble into multiple detected objects, affecting absolute Bubble Count and D50 values.

Comparative analysis remains relevant when hair coverage, acquisition and segmentation conditions are kept consistent.

Note: this sheet is designed as an application illustration, not as a scientific validation study.