Measuring instruments and Services for Interface Science

Editorial

Expanding the Scope of Foam Characterization

The science of foams continues to evolve, and with it come new challenges for experimental measurement. Researchers are increasingly working with precious or highly concentrated systems, where only a few milliliters are available for testing. In parallel, many industrial applications require the characterization of foams formed outside the analytical device whether it is a barista milk foam, a shaving cream, or a protein-based culinary foam.

To support these evolving needs, the FOAMSCAN™ has been enriched with new accessories. A small-volume measuring tube now opens the door to rigorous foam analysis using only 10 to 20 mL of sample, without compromising thermal control or data precision. In addition, new modules dedicated to pourable foams and corable firm foams make it possible to characterize externally generated systems while maintaining robust image analysis and liquid fraction measurements.

Through these developments, our objective remains unchanged: provide science-based, quantitative tools that make foam research more accurate, more versatile, and more relevant to real formulations.

We look forward to seeing how these new capabilities will support your work and inspire future research.

Enjoy your reading, and don't hesitate to share your questions or application ideas with us.

The TECLIS Team

FOAMSCAN™
Foam analyzer & defoamer tester

TRACKER™
Optical Drop Tensiometer & Interfacial rheometer

FOAMSCAN™

Small diameter Double-walled cylindrical glass measuring tube equipped with electrodes and prisms

A new option for working with small sample volumes

Many users request a solution to analyze foams when only a limited quantity of formulation is available. The FOAMSCAN™ can now be fitted with a small-diameter measuring tube, specifically designed for low-volume foaming solutions.

Just like the standard tube, this double-walled cylindrical tube is made of borosilicate glass, allowing accurate foam volume measurements by image analysis. It integrates conductivity electrodes that determine liquid content and liquid fraction during foam generation and decay. When connected to an external thermal circulator, the double-jacket can be heated, enabling measurements on liquid foams up to 90 °C.

The internal volume of this new tube is 90 mL, with an optimal working range of 10 to 20 mL of liquid. Due to the very small volume, this configuration is suitable only for foams generated by gas sparging.

FOAMSCAN™ equipped with the small diameter Double-walled cylindrical glass measuring tube and the gas sparging base

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Measuring foams produced externally

The FOAMSCAN™ platform delivers science-based foam characterization with precisely controlled generation, whether by gas sparging or mechanical stirring. In some research fields, however, the foam must be generated outside the instrument and analyzed only after formation.

To address this need, dedicated devices have been developed for:

- Foams sampled by pouring (beer, dairy foam, detergents…)
- Firm foams sampled by coring (egg white, whipped cream, shaving foam…)

Both systems deliver a full set of measurements using image analysis and conductivity-based liquid fraction quantification.

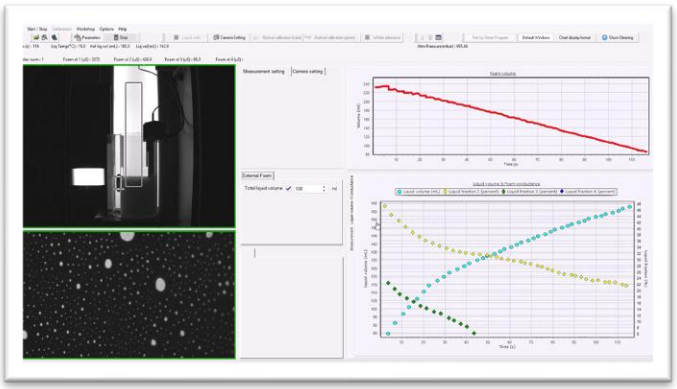
FOAMSCAN™

Equipment for foams sampled by pouring

This equipment is designed for foams produced externally (beverage overrun, barista milk foam, surfactant foam tests...) and transferred into the measuring tube.
The equipment is composed of:

- 500 mL borosilicate glass tube equipped with a right-angle prism for high-quality image analysis
- Holding base ensuring perfect alignment on the FOAMSCAN™ unit
- Immersed conductivity electrodes and temperature probe quantify liquid drainage and thermal conditions.

Once the foam is poured into the tube, the software automatically processes foam volume (by image analysis), Liquid volume and Liquid fraction (by conductance) and Foam structure imaging through the prism.



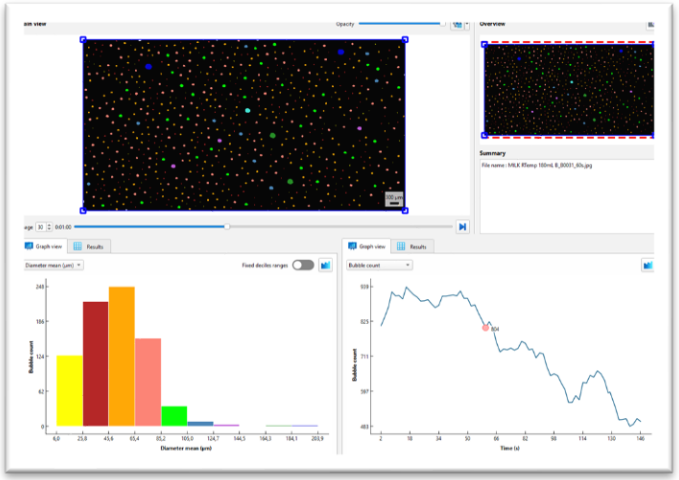
Measurement of Cow milk Foam using FOAMSCAN™

At the end of the run, the FOAMSCAN™ software outputs Foam Stability properties including foam volume half-life time (sec), liquid stability half-life time (sec), liquid fraction stability (drainage) and foam density stability.

Bubble size distribution and statistical analysis are obtained using BubbleStatistics™ software.

Cow milk Foam made with Nespresso Aeroccino

Regular Blond beer



Statistical analysis of Cow milk Foam structure using BubbleStatistics™ software

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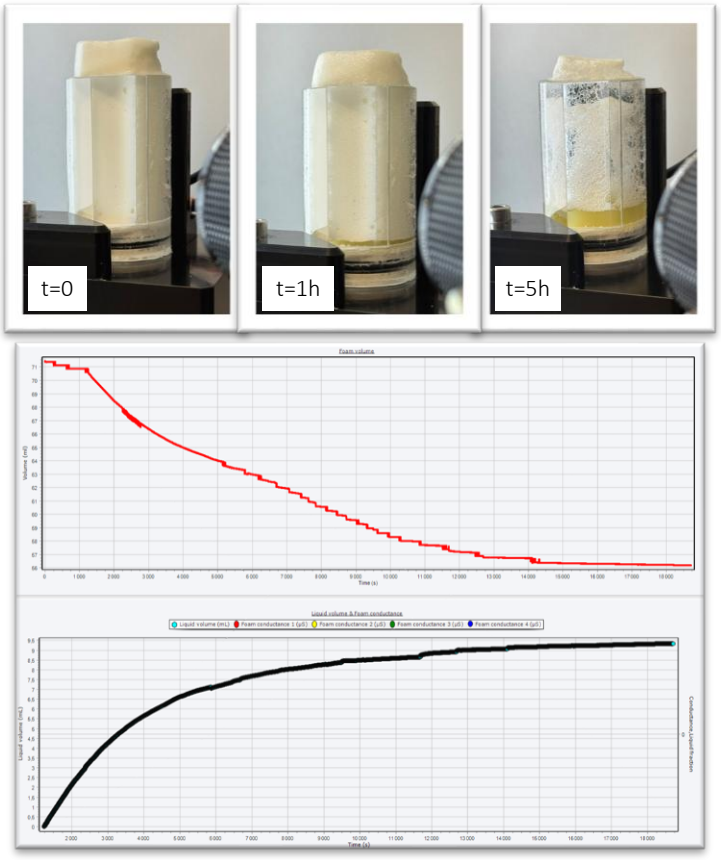
FOAMSCAN™

Equipment for firm foams sampled by coring

Firm foams cannot simply be poured. To enable their characterization, a dedicated open-ended coring tube has been designed for direct sampling.

Sampling is performed by coring directly into the foam using the 60mL double-open borosilicate glass tube equipped with a right-angle prism. Vertical electrodes and temperature probe are mounted on a holding base for perfect positioning.

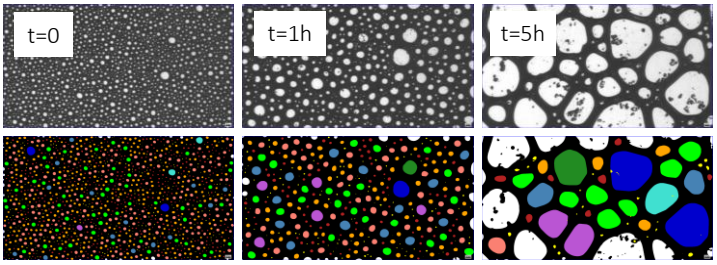
Once the sample is introduced into the tube and mounted on the FOAMSCAN™. The FOAMSCAN™ software calculates foam volume (by image analysis), Liquid volume and Liquid fraction (by conductance) and captures images of the foam structure through the prism.

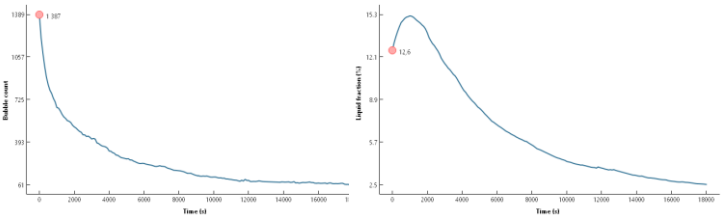


FOAMSCAN™ measurement of egg white sampled by coring

At the end of the measurement, the FOAMSCAN™ software delivers Foam Stability properties including foam volume half-life time (sec), liquid stability half-life time (sec), liquid fraction stability (drainage) and foam density stability.

Bubble size distribution and statistical metrics are provided by BubbleStatistics™ software.





Statistical analysis of white egg structure using BubbleStatistics™ software

TECLIS Scientific

Application notes and Theory

Explore our latest theory insights and application notes on the Teclis website.

From product brochures and customized quotations to in-depth discussions on interfacial science, Teclis supports you at every stage of your project.

Get in touch and let's turn your needs into actions.

CONTACT US

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