

RESULTS

The profiles in reference mode (the first profile is taken as a reference) show different kinds of backscattering and transmission variations :

- × a backscattering decreases in the middle of the samples (shaving and hair foams), that is characteristic of a coalescence of the gas bubbles (*Figure 1 et 2*).

- × followed by transmission increase at the bottom of the samples for hair foams, that is characteristic of a syneresis (liquid phase formation) (*Figure 1*).

From a general point of view , shaving foams appear more stable than the hair foams.

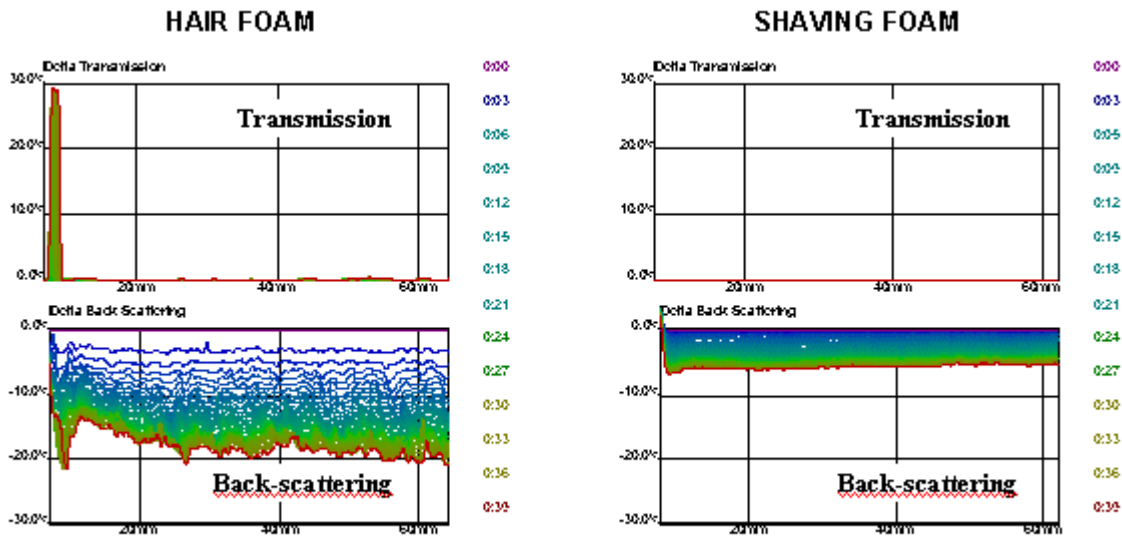


Figure 1

Figure 2

Analysis with a microscope allows a correlation between the backscattering levels and the gas bubbles sizes with a good correlation factor ($R^2 = 0.9542$) (*Figure 3*).

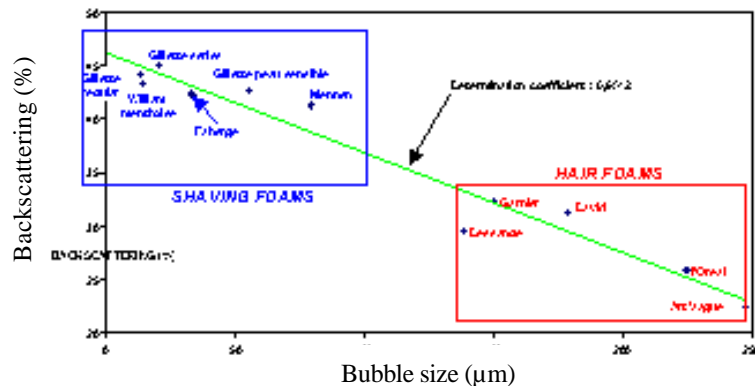


Figure 3. Correlation between backscattering intensity and size of the bubbles.

The kinetics of coalescence can be followed through the variation of the backscattering as a function of time (throughout the length of the sample). Knowing the relationship between backscattering and bubble size, (*Figure 3*) the backscattering variations can be directly expressed as bubble sizes variations as a function of time.

In conclusion, the hair foams seem to coalesce more quickly than shaving foams.

CONCLUSION

The **Turbiscan Classic** is able to quantify the coalescence of gas bubbles in a foam, in only a few minutes. It is therefore a useful tool for the formulator who wants to characterise the stability of such systems.

Stability Studies of the Hair Foams and Shaving Foams

INTRODUCTION

A foam is a coarse dispersion of a gas in a liquid, mainly composed of thin laminar sheets of liquid, between the gas bubbles.

The development of the foam and its subsequent stability are directly linked with the mechanical characteristics of these thin sheets of liquid. Small variations in the composition of these sheets can alter the stability and foaming power.



In order to characterise a foam stability; the formulators use the naked eye or the microscope. The microscope provides some data, although it is a fastidious technique, and many samples must be analysed for the results to be statistically valid. The naked eye is a quicker technique, although is purely subjective.

We are presenting experiments done with the **Turbiscan Classic** to investigate the stability of both hair and shaving foams.

SAMPLES PREPARATION AND EXPERIMENT PLAN

Analysis on Turbiscan :

15 different foams have been prepared in the following way :

Samples number	45
Analysis temperature	20°C
Duration of analysis	10 minutes

Optical microscope analysis :

Determination of the foams bubbles size (on a large population) and measure the back-scattering level at a time t.

