Foamability of a surfactant

Application
Surfactant

Objective
Determination of the foamability of a surfactant

Device
TURBISCAN® LAB

INTRODUCTION
A lot of industrial applications require the control of the foamability of the surfactants used in the formulations to increase it (shampoo, detergent, *etc.*) or to prevent it (pulps, paper industry). Moreover, for applications requiring a good foamability, this one needs to be controlled as too much foam can be an issue (difficulty to rinse off). Therefore, it is of great interest to have a good characterisation of the use property. Various techniques are already available in the industry but they are usually complex and very specific.
The Turbiscan LAB enables to measure the quantity of foam produced in an easy way with the possibility to form the foam within the measurement cell.

METHOD
Several surfactants have been tested after dissolution in demineralised water at various concentrations. 10 mL of these solutions were put in the measurement cells. The foam is created *in-situ* with a rotor-stator homogeniser (Ultraturrax®) for 5 minutes. The analysis is performed with the Turbiscan LAB immediately after.
The determination of the foamability of the surfactants is done by using the scan mode of the apparatus to measure the height of foam created. This will give a value of the foamability of the surfactant.
A parallel study was also done to measure the stability of the foam. It is reported in a separate application note “Stability of a foam”).


Experimental Set up

RESULTS
One of the easiest way to get a foam is by agitation of the surfactant solution and the measure of the quantity of foam obtained after the agitation. However, this method has some drawbacks especially regarding reproducibility as lots of parameters, such as the quantity of air and liquid, the viscosity of the liquid *etc.*, can modify the results. We have therefore checked the reproducibility of the measurements in order to get the best experimental set up. The formation of the foam directly in the measurement cell by agitating 5 minutes with the Ultraturrax® gave us a good reproducibility (*Figure 1*).