HOME & PERSONNAL CARE

Effect of a fragrance on perfume formulation stability

Introduction

Fragrances, once introduced into cosmetic applications, can occasionally impact the cohesion and stability of end-products and lead to instabilities. It is essential to provide stable products to avoid customer dissatisfaction.

In this study, the effect of different fragrances on a personal care product emulsion was evaluated using the Turbiscan™.
The objective was to identify the best dosage for each fragrance avoiding product instability.

KEY **BENEFITS**

FAST

SENSITIVE

QUANTIFIED DESTABILIZATION

Reminder on the technique

Turbiscan™ instrument, based on Static Multiple Light Scattering, consists in sending a light source (880 nm) on a sample and acquiring Backscattered (BS) and transmitted (T) signal. Combining both detectors (BS & T) enables to reach wider concentration range. The backward reflected light comes from multiple scattering as the photons scatter several times on different particles (or drop).

This signal intensity (BS) is directly linked to different parameter, according to the Mie theory

$$BS = f(d, \varphi, n_p, n_f)$$

Method

Fragrances A, B & C are currently on the market in emulsion 1 at dosages included between 1.0 and 1.75%. In order to determine the best dosage for each of the fragrances in the new emulsion, samples A, B & C were added at 1.0% and 1.75% to the emulsion 2. The stability of all samples is analyzed by scanning them using the Turbiscan™ technology during 2 hours at 45°C.

Raw data

By analyzing the samples according to the method described in the previous paragraph, the following result is obtained:

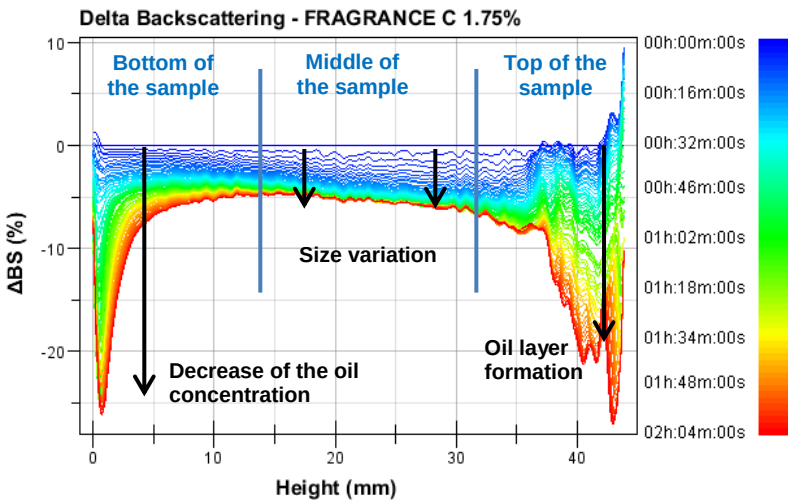

Figure 1: Backscattering variation for Fragrance C 1.75% in emulsion 2

The graph in Figure 1 is representative for all samples. A global decrease of BS intensity is observed meaning an increase of the droplets size. A phase separation of emulsion 2 can be identified since: