



# Effect of Raw Materials on a Formulation

## Screening of raw material

### Application

Cosmetics

### Objective

Effect of the type of pigment on the stability of sunscreen

### Device

TURBISCAN® Classic

## INTRODUCTION

Cosmetic preparations can be complex dispersions with different kinds of particles in suspension in an aqueous or an emulsion phase. For make-up and sunscreens, the colour, brightness, gloss and physicochemical properties of the suspended particles, determine the final quality and stability of the product.

The Turbiscan Classic determines the stability of these products with respect to particle migrations and particle size changes.

This study shows a comparison of the stability of sunscreens, with different pigment types.

## METHOD

Two different dispersions have been prepared with two kinds of pigments:

- Titanium Dioxide (TiO<sub>2</sub>)
- Zinc Oxide (ZnO)

|                         |          |
|-------------------------|----------|
| Samples quantity        | 2        |
| Analysed volume         | 6 ml     |
| Temperature of analysis | 40°C     |
| Duration of analysis    | 46 hours |

Two hours are needed to bring the products to the required temperature (40°C). So, the curve after two hours of analysis is selected as a reference : the subsequent traces then show the changes in the back scattered light intensity (% , ordinate axis) and the height of the tube (mm, abscises axis) as a function of time (the last curve is always displayed in red).

## RESULTS

From the profiles obtained, we can see a backscattering decrease at the top of both samples (Figure 1 and 2). It is due to a decrease in the concentration of the dispersed particles in this zone, and is characteristic of a clarification of the products.

**TiO<sub>2</sub> (21/12/97 12:23)**

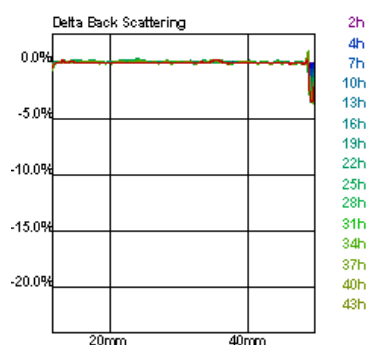


Figure 1

**ZnO (21/12/97 12:23)**

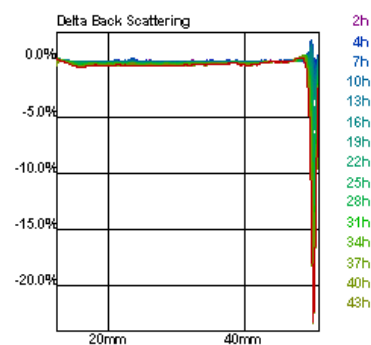


Figure 2