



Effect of the Introduction of Polymer on Pigment Dispersion Stability

Application

Paint & Ink

Objective

Study the effect of polymer concentration on pigment stability

Device

TURBISCAN® Classic

INTRODUCTION

Paint companies produce different pigmented coatings, mechanical and/or chemical properties, which enable them to have a given consistency (thick and stable when unused but then easy to apply) and to adhere on different kind of supports. The incorporation of polymers (binders) in these products allow the cohesion between the different components and so the expected properties to be reached.

Depending on the quantity of polymers added, the stability and the consistency of the products will be affected. Knowing of the polymer quantity to be added allows the formulator to develop a product which is both viscous and stable with the required rheological profile ie. viscosity decrease during application (brushing).

The analysis with the Turbiscan Classic enables to study the stability of pigment dispersions as a function of the concentration in polymer.

METHOD

Four dispersions of phthalocyanin, at different concentrations in polymer.

Samples quantity	4
Analysed volume	6 ml
Temperature of analysis	20°C
Duration of analysis	20 hours

In order to visualise only the back-scattering variations (% , ordinate axis) on the tube height (mm, abscises axis) as a function of time (last curve coloured in red), we draw the "difference curves". These are obtained by deduction point by point from a curve chosen as the reference. In this case, we have chosen the curve t=0.

RESULTS

From the profiles obtained, we can see different kinds of backscattering variation :

- an important backscattering decrease at the top of both samples, characteristic of a clarification of the products in this zone (Figure 1 and 2).
- a backscattering increase at the bottom of both samples, significant of the sediment layer formation (Figure 1 and 2).