

TURBISCAN

COMPREHENSIVE
CHARACTERISATION
OF CONCENTRATED
DISPERSIONS

Formulation 

INSTRUMENTS FOR A COMPREHENSIVE CHARACTERISATION

CHARACTERISATION AND AGEING TESTS FOR R&D, ANALYSIS AND QUALITY CONTROL

→ TURBISCAN LAb

→ TO CORRECT AND IMPROVE FORMULATIONS

The **Turbiscan LAb** offers the possibility to accelerate and document ageing tests. In this regard, variations in particle size due to coalescence or flocculation can be monitored via **particle mean diameter over time**. Migrations of the particles leading to sedimentation or creaming are analysed by direct calculation of the migration speed and the **thickness of the sediment or cream phases**.

→ TO CONTROL AND CHARACTERISE DISPERSIONS

The **Turbiscan LAb** also enables to carry out a measurement at one point in order to give a rapid fingerprint of the product being analysed. This sample dispersion state (λ^*) is measured without entering any parameter of the product, ensuring that the **product meets the required specifications** in terms of dispersion state, particle size and/or concentration.

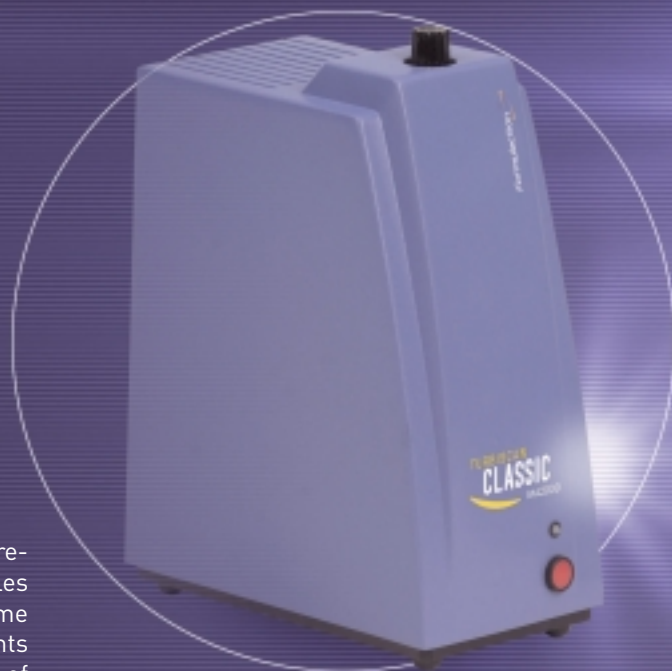


SHORT TIME STABILITY ANALYSIS
FOR PRE-FORMULATION IN R&D LABORATORY

→ TURBISCAN CLASSIC MA 2000

→ QUICK SCREENING OF FORMULATIONS

The **Turbiscan Classic -MA 2000-** is the tool dedicated to optimise the pre-formulation work by giving an insight of the **instability trends**. It enables a **quick and objective screening of dispersions** through their short time (in)stability behaviour. It can monitor the effects of various components in the product (nature of both phases, nature and concentration of surfactants) by detecting destabilisation phenomena such as particle migrations (sedimentation, creaming) and/or particle size variations (coalescence, flocculation) **20 to 50 times faster than visual detection**.



TURBISCAN
→ WORKS ON EMULSIONS

- Up to 60 %
v/v concentrated

AUTOMATED AGEING STATION FOR R&D, ANALYSIS AND QUALITY CONTROL

→ TURBISCAN AGS



→ AUTOMATED SCREENING AND CONTROL OF FORMULATIONS

The **Turbiscan AGS** integrates the Turbiscan LAb and a robot with three thermo regulated blocks for the storage of the samples. It enables an efficient **automated management of ageing tests**. This instrument is dedicated to formulation screening regarding their long term stability behaviour for control or R&D purposes. It is also a perfectly adapted instrument for a **systematic quality control** of concentrated dispersions at the end of the manufacturing process: the automation allows it to work 24 hours a day and 7 days a week. It can be operated by several users simultaneously.

REAL TIME PROCESS OPTIMISATION AND CONTROL FOR R&D LABORATORY & PILOT PLANT

→ TURBISCAN ON LINE



→ FORMULATION OPTIMISATION AND PROCESS CONTROL

The **Turbiscan On Line** offers the possibility of monitoring in real time the physical properties of dispersions (mean diameter, volume fraction), during processing, by on line measurement. This dynamic method of working instantly **monitors the effects of the process parameters** (stirring system, grinding, pressure, temperature, method of addition, surfactant effects, pH), on the dispersion state by measuring in real time the mean diameter or the volume fraction of the dispersed phase.

, SUSPENSIONS AND FOAMS:

- From 0.1 μm to 1 mm particle size

→ A DETAILED BROCHURE OF EACH INSTRUMENT IS ALSO AVAILABLE

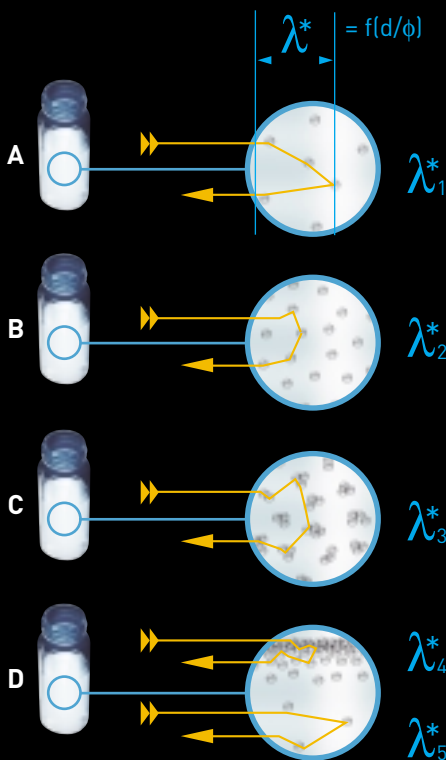
The Turbiscan technology

The dispersion state of a liquid dispersion represents the spatial distribution of the particles in the sample (creaming, sedimentation...). It is linked to the particle diameter, their volume fraction and the way the particles interact together. Therefore, it can be approached through the determination of the spatial distribution of d/ϕ ratio.

→ EXAMPLE:



Do the 4 samples have the same dispersion state?



$$\lambda^*_1 \neq \lambda^*_2 \neq \lambda^*_3 \neq \lambda^*_4 \neq \lambda^*_5$$

Different dispersion states lead to different λ^* values

MULTIPLE LIGHT SCATTERING OFFERS:

- Measurement of physical parameters of up to 60% v/v concentrated systems and over a wide range size (from 0.1 μm to 1 mm)
- Calculation of the mean particle diameter or the volume fraction
- Non-destructive technique (no dilution)
- No sample preparation

The Turbiscan range

associates a vertical scanning

of the height of the sample to

multiple light scattering

technology. The $\lambda^* = f(d/\phi)$

measurement enables to

achieve a comprehensive

characterisation of the

dispersion state.

Formulation

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