



BeScan Lab

Stability Excellence Within Reach

- Real stability analysis for dispersions
- Fast and direct stability measurement
- Qualitative and quantitative stability analysis

INTRODUCTION

Introducing BeScan Lab, the versatile, sensitive, and reliable stability analyzer based on Static Multiple Light Scattering (SMLS) technology, is widely used in the development of formulation analysis and product quality control. It accommodates a wide range of sample concentrations (up to 95% v/v) and types (e.g., emulsions, suspensions, and foams), with temperature scanning capabilities reaching up to 80°C. BeScan Lab provides both qualitative analysis and quantitative detection of destabilization, helping you achieve long-term product stability and optimal shelf life.



FEATURES & BENEFITS

Real stability analysis for dispersions

- Volume fraction up to 95%
- Particle size ranges from 10 nm to 1 mm
- Non-destructive testing: non-contact, non-diluting, and non-shearing

Fast and direct stability measurement

- Data acquisition with a resolution of 20 μm enables quicker observation of sample stability than that with the naked eye
- Precise temperature control up to 80°C to accelerate unstable phenomena
- "One-to-many" system enables simultaneous testing of different samples with one software

Qualitative and quantitative stability analysis

- Identification of various unstable phenomena: creaming, sedimentation, flocculation, coalescence, and breaking
- Quantification of destabilizations and study of mechanisms

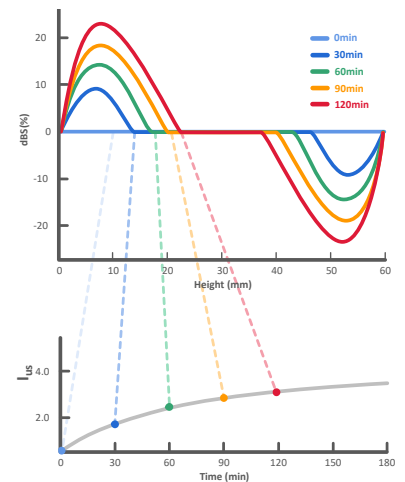
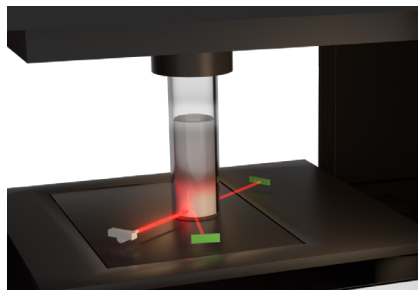
MEASUREMENT PRINCIPLE

SMLS is employed to characterize the stability of dispersions. Within BeScan Lab, a setup comprising two detectors and an LED light source ascends along the sample cell to conduct sample scanning. In the case of concentrated samples, the backward detector is employed to detect backscattered signals, while for diluted samples, the forward detector is utilized to detect transmitted signals.

The sample will undergo scanning every 20 μm vertically to capture changes in transmitted and backscattered signals, indicating destabilization. Following each scan, an instability index (I_{US}) can be computed. Short-term or Long-term stability can then be assessed based on the trend of I_{US} .

$$I_{US} = \sum_n \frac{\sum_h |I_n(h) - I_{n-1}(h)|}{H}$$

Mean particle size measurement can be implemented by analyzing transmission, backscattering, or particle migration rate. Investigation of particle size facilitates the research on unstable phenomena.



APPLICATIONS



Petrochemicals



Pharmaceuticals



Agrochemicals

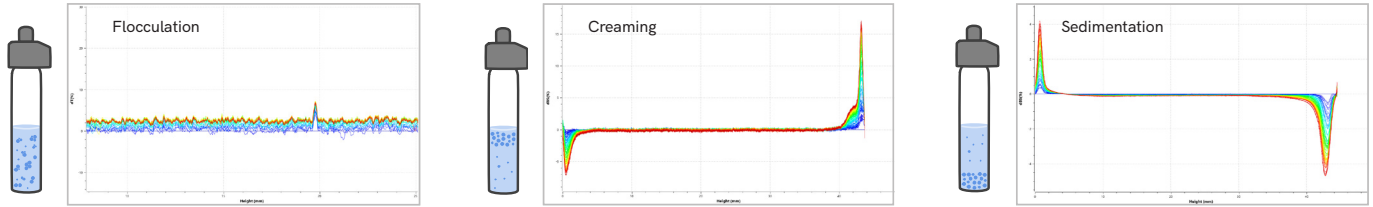


Food & Beverages

SIMPLE AND INTUITIVE SOFTWARE

With our powerful software, the BeScan Lab Stability Analyzer enables rapid and highly sensitive testing, facilitating the characterization of unstable phenomena.

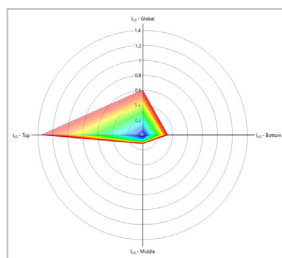
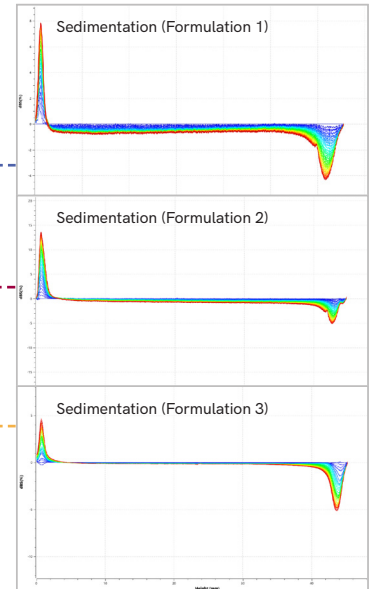
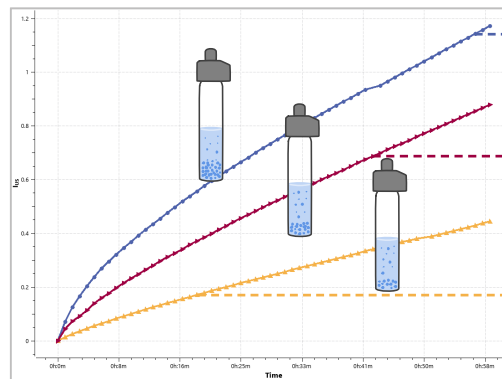
Qualitative analysis:



Quantitative analysis:

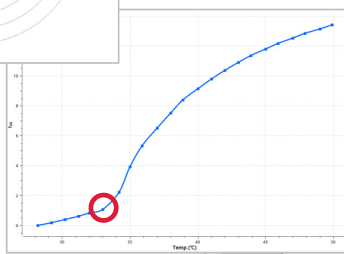
Instability index (I_{US})

The stability can be quantitatively analyzed using I_{US} , which is determined by integrating the variations in the sample.



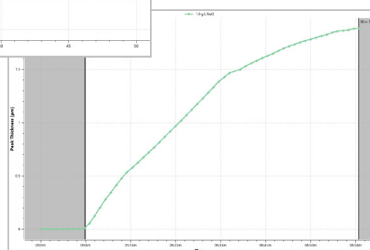
Radar chart

Global and local instability indices for each scanning are illustrated in form of a radar chart, intuitively providing a way to investigate local stability (top, middle, and bottom).



Temperature trend testing

Temperature trend testing enables stability analysis over different temperatures. Temperature is a critical factor that affects system stability. It is of vital importance to find out the change point.



Peak thickness analysis

Scatter plot of peak thickness demonstrates how fast the particles settle or float upward. Besides, the mean particle size based on gravitational liquid sedimentation can be obtained.



Parameters	Values
Measurement principle	SMLS (Static Multiple Light Scattering)
Detection angle	0° transmission and 135° backscattering
Light source	850 nm LED
Scan step	20 µm
Maximum volume fraction	95%
Measurement range of particle size	0.01 - 1000 µm
Temperature range	RT+5 °C - 80 °C (±0.5 °C)
Sample volume	4 - 25 mL
Measurement mode	Regular/Fixed point/Temp. trend
Dimension	460(L) x 260(W) x 280(H) mm
Weight	13.5 kg
Power	AC100 - 240 V, 50 - 60 Hz, 3.8 A
ISO compliance	ISO/TR 18811:2018, ISO/TR 13097:2013 ISO/TR 21357:2022, ISO/TS 22107:2021

* Sample and sample preparation dependent

Bettersize

BETTER PARTICLE SIZE SOLUTIONS

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