Bettersize

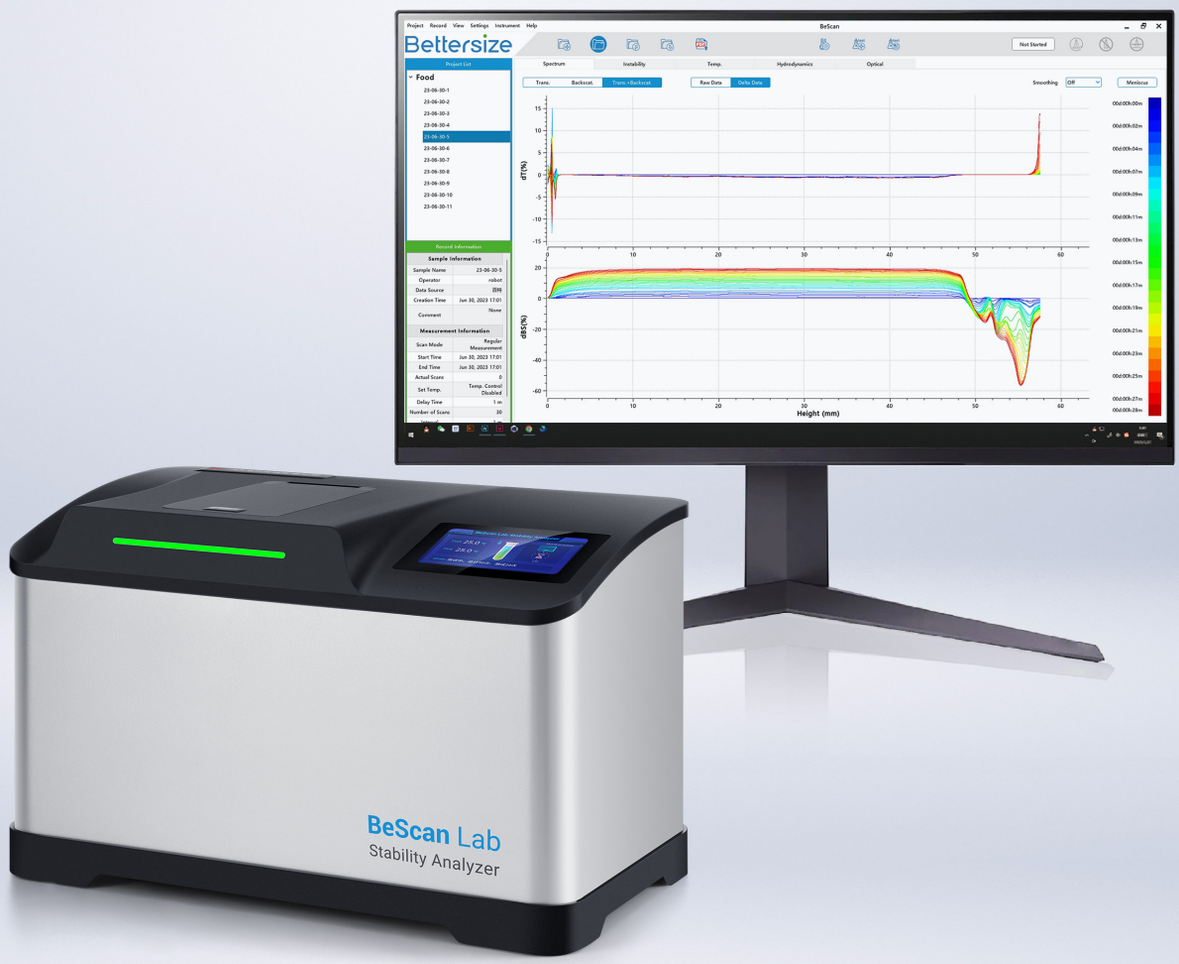
BETTER PARTICLE SIZE SOLUTIONS

INSTABILITY INDEX

DESTABILIZATION DETECTION

PHASE SEPARATION DYNAMICS

MEAN PARTICLE SIZE VARIATION



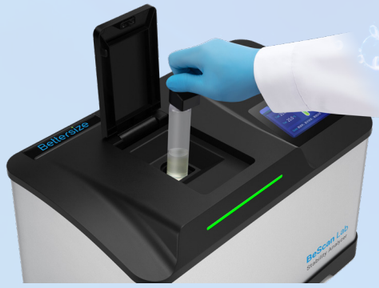
BeScan Lab

Stability Excellence Within Reach

- Non-destructive stability analysis for various dispersions
- Fast and direct stability measurement
- Qualitative and quantitative stability results

INTRODUCTION

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



FEATURES & BENEFITS

Non-destructive stability analysis for various dispersions

- Non-contact, non-dilution, non-shearing
- Sample volume fraction up to **95%**
- Particle size measurement range from **0.01** to **1,000** µm

Fast and direct stability measurement

- The high-performance LED and ultra-sensitive detectors, with **20-micron** scan step, allow real-time monitoring and capture of subtle variations **200 times** faster than the naked eye
- Temperature control up to **80 °C** to accelerate destabilization

Qualitative and quantitative stability results

- Identification of various unstable phenomena, such as creaming, sedimentation, flocculation, coalescence, and phase separation
- Quantification of destabilizations and study of kinetics

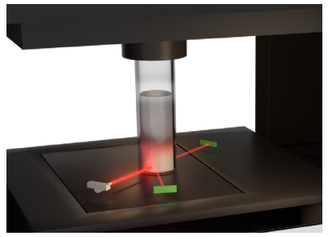
MEASUREMENT PRINCIPLE

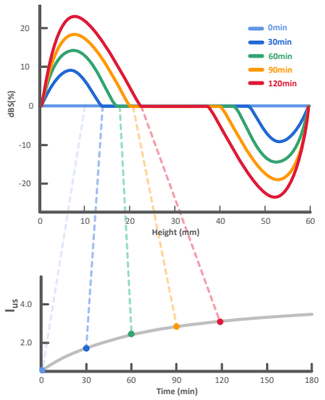
SMLS is employed to characterize the stability of dispersions. Within BeScan Lab, a setup comprising two detectors and an LED light source ascends along the sample cell to conduct sample scanning. In the case of opaque samples, the backward detector is employed to detect backscattered signals, while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

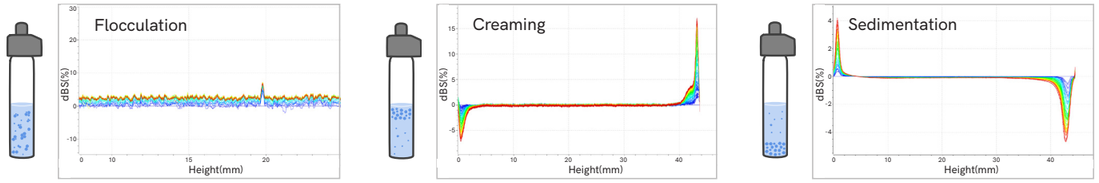




SIMPLE AND INTUITIVE SOFTWARE

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

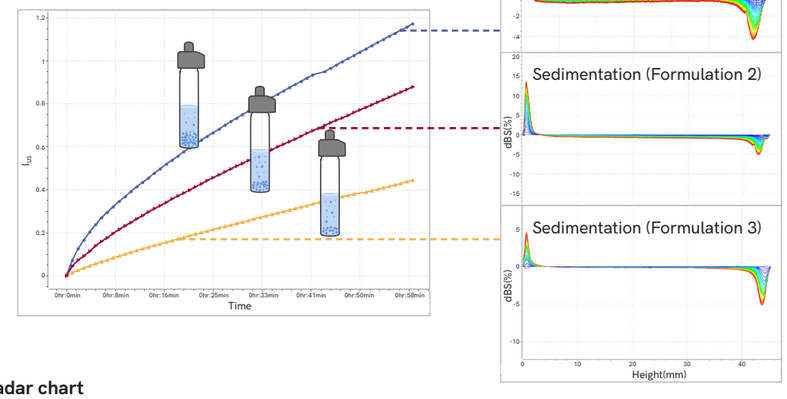
Qualitative analysis:

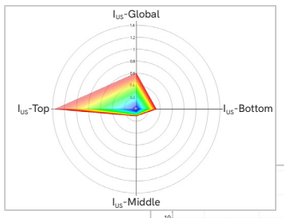


Quantitative analysis:

Instability index (I_{US})

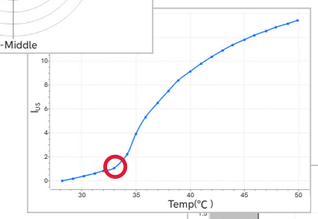
The stability can be quantitatively analyzed using I_{US}, which is determined by integrating the variations in the sample.





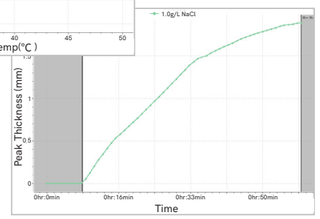
Radar chart

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



Temperature trend measurement

Programmable temperature trend measurement up to 80°C, which explores stability under extreme conditions and accelerates destabilization.



Phase separation dynamics and mean particle size

Hydrodynamic analysis reveals layer thickness and particle migration rate over time, thereby determining the hydrodynamic mean diameter.

APPLICATIONS

Specifications	
Measurement principle	SMLS (Static Multiple Light Scattering)
Detection angle	0° transmission and 135° backscattering
Light source	850 nm LED
Scan step	20 μm
Scan height	0 - 60 mm
Number of samples	1
Maximum volume fraction*	95%
Measurement range of particle size	0.01 - 1,000 μm
Temperature control	RT - 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 supply	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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