

# RHEOLASER® CRYSTAL

## MICROSTRUCTURE EVOLUTION THERMAL ANALYSIS

A DEEPER LOOK AT YOUR  
SAMPLES MICROSTRUCTURE



### MONITOR ANY PHYSICAL PHENOMENON

Crystallization, melting,  
polymorphic transition...

### ACCURATE

4 - 90°C  
0.1 - 25°C / min  
Optical non-invasive  
measurement

### VERSATILE

Any sample size (0.05-5g)  
Any sample structure  
Any sample form

### STRAIGHTFORWARD

1-click measurement  
Direct sampling  
No denaturation  
Disposable sample holders



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**FORMULACTION**   
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## TAKE A DEEPER LOOK AT YOUR SAMPLES MICROSTRUCTURE

Rheolaser Crystal enables to monitor microstructure evolution in heterogeneous products with an innovative optical method, combining a non-invasive measurement with accurate temperature control and sufficiently large sample volume (0.05 - 5g) to overcome problems of heterogeneities. This enables to measure finished products, such as food, cosmetics or pharmaceuticals, and identify transition temperatures of proteins, polymers, waxes or any fatty compounds.



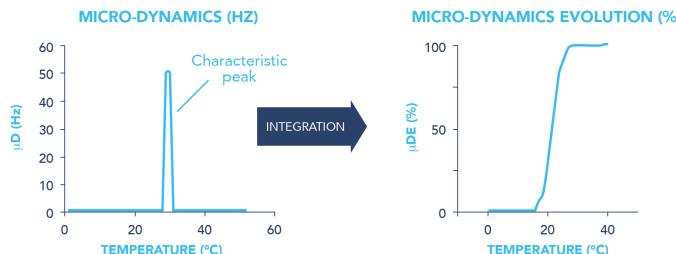
### MEASUREMENT PRINCIPLE



- Wax crystallisation and melting
- Fat blooming prediction
- Protein denaturation
- Crystalline phase transitions
- Blend compatibility studies

Rheolaser Crystal uses the Diffusing Wave Spectroscopy principle (DWS). Light is scattered by the particles, creating an interference pattern (Speckle Image). The variation of this image is directly related to the motion of the particles: the faster they move, the faster the Speckle Image changes. By a mathematical analysis of this variation, decorrelation functions can be computed and then processed, to obtain a characteristic time  $\tau$ , as a function of time or temperature.

Values of  $1/\tau$  or Micro-Dynamics (Hz), are then plotted against time or temperature, resulting in characteristic peaks when the product shows a microstructural evolution, such as a phase transition or any other physical event. The signal can then be integrated for an easier visualisation, obtaining the so-called Micro-Dynamics Evolution (%).



### APPLICATIONS



### TECHNICAL SPECIFICATIONS

Temperature Range	4 - 90°C
Temperature Ramp Speed	0.1 - 25°C/min
Sample Volume	0.05 - 5 g
Sample Form	Any (liquid, solid, gel)
Disposable Sample Holder	.
Laser Wavelength	650 nm
Dimensions (cm)	47 x 26 x 34
Weight (kg)	15 kg
Recommended Configuration	Windows 7, 8 or 10, Intel Core i5, 4GB RAM, 32/64 bit



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