RHEOLASER MASTER

6 SAMPLE POSITIONS
Easy and fast comparison of various formulations or parameters (pH, conc., time...)

MEASUREMENT AT REST
An optical method for zero shear and non-intrusive analysis of viscoelastic properties.

MULTIPARAMETER ANALYSIS
Single experiment set-up for viscosity, elasticity, gel point, aging time... characterization.

KINETIC ANALYSIS
Monitoring of rheological behavior over ageing time on the very same sample.

BULK RHEOLOGY AT REST

MICRORHEOLOGY

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BLG
KİMYA TEKNOLOJİLERİ

Formulaction
Smart scientific analysis

# VISCOSLEASTICITY CHARACTERIZATION **AT REST** AND **OVER TIME**

Rheolaser®MASTER enables the analysis of rheological properties of soft materials without mechanical stress (by passive microrheology). It is particularly suited for viscoelastic evolution monitoring: sol-gel transitions, changes due to aging or structure recovery. Based on diffusing wave spectroscopy (DWS) it provides highly sensitive monitoring of the smallest structure changes without contact.

MEASUREMENT **PRINCIPLE**

LIGHT SOURCE
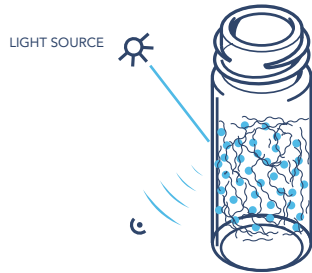
Rheolaser®MASTER is based on Multi Speckle Diffusing Wave Spectroscopy (MS-DWS) and detects particle Brownian motion. A thorough analysis of wave interferences due to particle mobility provides information about the rheological properties of the structure. In a strong gel (viscoelastic systems) particle mobility will be partially limited by the network structure. While in a simple viscous media, the mean square displacement (MSD) will have more linear form.
Monitoring MSD over time and temperature allows to monitor gel formation, determine sol -gel transitions and characterize gel strength with extreme accuracy and without any contact with the sample.

MSD (nm^2) — Viscous, Visco-elastic — 10^{-2}, 1, 10^2, 10^4 — $t_{dec}(S)$
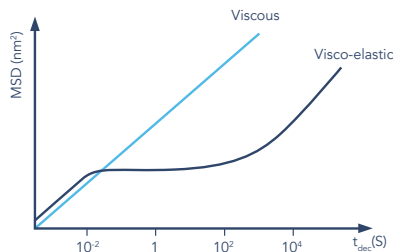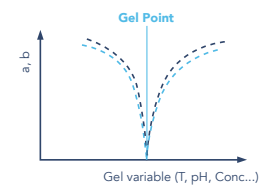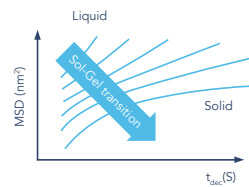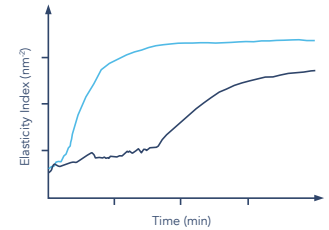
KEY **BENEFITS**

NON-CONTACT RHEOLOGY
- Weak structure characterization (weak gels, emulsions…)
- Long term analysis without stress or resampling.
- Gel formation monitoring without intervention.

A SIMPLE EXPERIMENTAL SET-UP
- Easy sample manipulations, no calibration or geometry setting
- 6 sample positions for simultaneous measurement
- Fully automated data treatments

GEL POINT DETERMINATION
- A complete viscoelastic analysis: gel formation, gel strength, viscosity and elasticity indices.
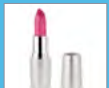- Gel point determination as a function of multiple parameters (temperature, time, pH, concentration…)

Elasticity Index (nm^2) — Time (min)

MSD (nm^2) — Liquid, Solid, Sol-Gel transition — $t_{dec}(S)$

a, b — Gel Point — Gel variable (T, pH, Conc…)

APPLI**CATIONS**

Food

Polymers

Cosmetics

Pharmaceutical

Raw materials

Oil & Petroleum

TECHNICAL **SPECIFICATIONS**

Technology	MS-DWS 650 nm
Cell Volume	4 or 20 ml
Simultaneous measurements	6
Temperature control	RT to 90°C
I* measurement	Yes
Minimum Viscosity	15 mPa.s
Dimensions	60 x 40 x 30 cm
Weight	36kg

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