FLUIDICAM® RHEO

VISUAL FLOW RHEOLOGY BY MICROFLUIDICS

HIGH SHEAR VISCOSITY

FAST AND SIMPLE

- One click experiment
- Fast, automated shear rate and temperature screening
- Visual control of the measurement

VERSATILE

- Wide range of viscosity: 0.1-200,000 cP
- Wide application range: liquid, viscous, pasty, volitile

MICROFLUIDIC PRINCIPLE

- Shear rates higher than 10^5 s^{-1} are accessible
- Very low volume required for sample measurement

AND MUCH MORE

- High precision even at very low viscosity
- Automatic flow control
- Disposable microfluidic chip

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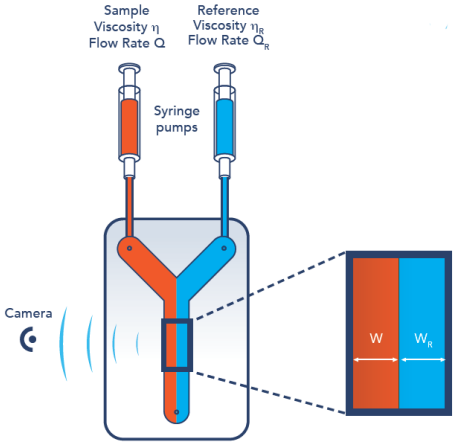
FORMULACTION
Scientific instruments

VISCOSITY WITH EYES WIDE OPEN

Fluidicam is designed for viscosity measurements of products with various consistency (liquids, gels or semi-solid emulsions...). It is based on optical acquisition of flow in a microfluidic chip. Strong confinement within the chip allows high shear rate analysis, small sample volume and fast temperature adjustments.

MEASUREMENT PRINCIPLE



- High Shear Rate
- Small Sample Volume
- Easily Disposable Chips
- Fast and Simple

$$\text{Shear Rate } \alpha \frac{\text{Flow Rate}}{\text{Channel Gap}}$$

$$\frac{W}{W_R} = \frac{\eta}{\eta_R} \times \frac{Q}{Q_R}$$

A sample and a viscosity standard are pushed together through a microfluidic "Y-shaped" chip at controlled flow rates. Images of the resulting laminar co-flow are acquired via an integrated optical system and the position of the interface is measured. The interface position is related to the viscosity and the flow rate ratio between the sample and the reference. Using dedicated algorithms, sample viscosity is automatically extracted as a function of shear rate and temperature thanks to an intuitive and automated software.

KEY BENEFITS

MICROFLUIDIC PRINCIPLE

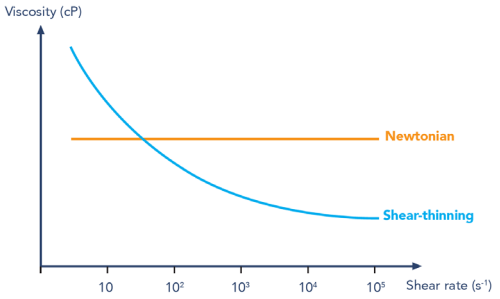
Thanks to a highly confined setup, shear rates up to 180,000 s^{-1} are accessible and only a very low volume is required for the measurement (down to 100µl for 1 measurement point). As the viscosity is measured at flow, a fresh sample is always analysed without resampling, also enabling automatic repetitions.

UNIVERSAL RHEOLOGICAL DEVICE

Various samples can be analysed from 0.1 up to 200,000 cP with a high throughput temperature screening from 4°C to 80°C.

FLOW CURVE IN A SINGLE CLICK

Simple setup without calibration allows fast, automatic and reliable viscosity measurement.



APPLICATIONS

TECHNICAL SPECIFICATIONS

Viscosity Range	0.1 - 200,000 cP
Shear Rate Range	100 to more than 10^5 s^{-1}
Temperature	4 - 80°C
Min Sample Volume	100 µl for 1 measurement point
Microchip	Gap 150 and 50 µm / glass and plastic (PMMA)
Syringe Size	10 or 1 mL
Accuracy	1%
Repeatability	1%
Dimensions	37 x 32 x 66 cm
Weight	20 kg
Recommended Configuration	Windows 7, 8 or 10, Intel Core i5
	4 GB RAM, 32/64 bit

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