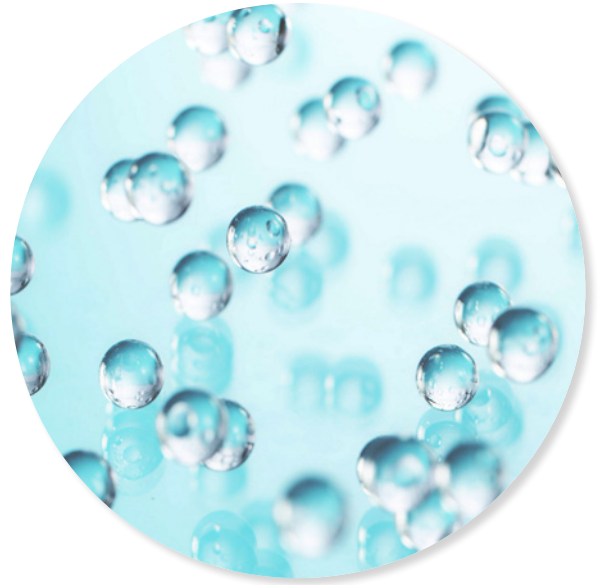


ARES-G3™ Rheometer Complex Fluids Testing

Complex fluids like emulsions, suspensions, paints, inks, coatings, and slurries exhibit properties of two phases and therefore have complicated mechanical responses to applied stress or strain. The Discovery™ ARES-G3 Rheometer offers complete control and clarity to uncover complex fluids' fundamental interactions and how they relate to bulk behavior. Building upon ARES Rheometers legacy as the research rheometer of choice for complex fluids scientists for over 55 years, the ARES-G3 Rheometer offers unmatched capabilities paired with innovative new technology.



Complete Complex Fluids Characterization

The industry's only¹ **force-rebalanced transducer (FRT)** delivering minimal corrections to data

Pioneering **separate motor and transducer (SMT)** technology delivers a higher level of data accuracy under a wider range of measurement conditions

Advanced peltier system (APS) is the accessory of choice for fluids supporting parallel plate, cone and plate, and concentric cylinder testing from -10°C to 150°C

SmartSwap™ technology makes accessories easier than ever to install



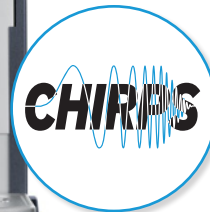
Advanced Testing at Your Fingertips

New touchscreen gives full experimental control right at the instrument

Trustworthy data with access to raw phase angle measurements and waveforms

High-speed data acquisition and fully integrated Fast Frequency Chirps uses optimally windowed chirps (OWCh) to reduce test time by up to 80%, enabling analysis of fast changing materials

Updated keypad facilitates common experiment controls, like moving the instrument head or starting an experiment, with ease



¹ At time of publication.

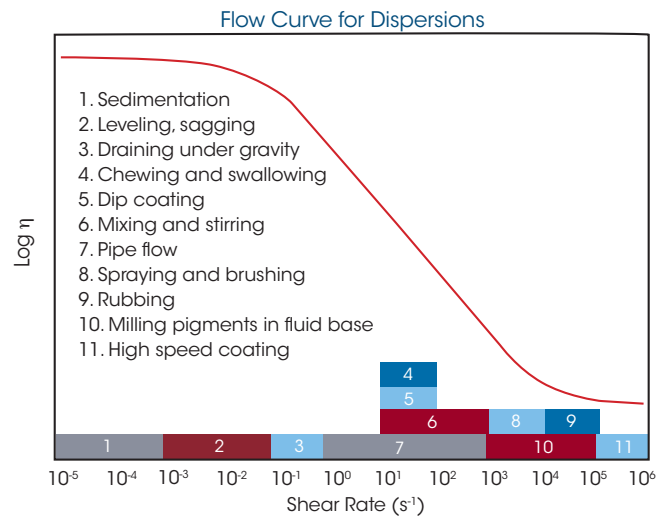
Material Analysis

With advanced rheological capabilities, including precise measurements of viscosity, viscoelasticity, and stress responses, the ARES-G3 Rheometer allows users to fingerprint complex fluids and quantify the physics of their chemical interactions. By quantifying how formulation changes influence final properties, the ARES-G3 Rheometer is an essential tool in understanding and refining the structure-function relationships within the complex fluids that are all around us, from medicine and foods to paints and plastics. Go beyond simply understanding your materials: the ARES-G3 Rheometer empowers material innovation, revealing how minute structural details contribute to final properties.

Testing

Viscosity for Processability

Optimizing complex fluids' viscosity is essential for processing including pumping, mixing, molding, or coating. Controlling viscosity ensures consistent material behavior and quality, enabling smooth operation across manufacturing steps. The ARES-G3 Rheometer measures apparent viscosity, yield stress, shear thinning, and thixotropy which correlate to real world processes. Simple techniques like spindle viscometers can only measure a point or small part of the total curve, while the ARES-G3 Rheometer captures all information, informing processing decisions with applicable data. The high-capacity separate motor and transducer drive the commanded shear rate with improved accuracy to empower realistic, exacting results.



Fluid Dynamics Characterization

With pioneering separate motor and transducer (SMT) technology, the ARES-G3 Rheometer enables access to higher frequency ranges, capturing fast-changing material responses with exceptional precision. Unlike traditional systems that rely heavily on post-processing corrections, the ARES-G3 Rheometer preserves the authenticity of the data, allowing material relationships to emerge unmasked by corrections. Researchers gain clearer insights into the intrinsic behavior of complex fluids, leading to more confident interpretation of flow dynamics and structural interactions.

Transient Structural Breakdown

Transient structural breakdown is revealed with precision thanks to the ARES-G3 Rheometer's high-capacity direct drive motor, which gets to the commanded deformations quickly and accurately. When materials undergo large strains or shear, the internal structure can shift dramatically—and capturing these fast, nonlinear changes demands responsive instrumentation. Paired with high-speed electronics and elevated data acquisition rates, the ARES-G3 Rheometer records these quick changes without delay or distortion. This empowers researchers to concentrate fully on interpreting the mechanics of material failure and recovery, gaining actionable insights into structural resilience and formulation effects.

Large Amplitude Oscillatory Shear (LAOS)

LAOS testing on the ARES-G3 Rheometer enables researchers to unlock nonlinear viscoelastic behavior of complex fluids with exceptional clarity and resolution. With high-speed data acquisition reaching up to 24,000 Hz and advanced digital signal processing, the instrument captures intricate, time-sensitive material responses that are often missed by conventional rheometers. Whether studying micellar solutions, entangled polymer melts, or structured emulsions, LAOS generates a unique rheological fingerprint that reveals how these complex fluids respond to large deformations. This deeper understanding allows scientists to map the microstructural changes triggered under real-world strain conditions—paving the way for optimized formulations and predictive performance.

Orthogonal Superposition (OSP)

OSP testing on the ARES-G3 Rheometer revolutionizes complex fluids characterization by capturing their structural evolution in real-time during flow. Leveraging the instrument's separate motor and transducer design, OSP applies rotational shear and oscillation simultaneously, enabling controlled-flow rheology measurements unique to the ARES-G3 Rheometer. OSP reveals how emulsions, suspensions, coatings, and other multi-phase fluids respond dynamically to stress, uncovering behaviors like thixotropy and yield stress with unmatched precision. By connecting structural changes to processing conditions, researchers gain powerful predictive insights for formulation, application, and performance.

Accessory Overview

Structure Under Real-World Conditions:

Orthogonal Superposition

Understand a material's structural changes during flow and predict behavior during processing, pumping, and application.

High Sensitivity Pressure Cell (HSPC)

Unlock complete viscoelastic characterization of complex fluids in a pressurized environment.

Simultaneous Measurements:

Dielectric Thermal Analysis Accessory (DETA)

Measure complex fluids' electric response by probing their capacitive and conductive properties.

Electrorheology (ER)

Characterize suspensions' rheology in response to external electrical stimuli.

Ultra-Violet Curing

Accurately measure storage and loss moduli during the curing reaction.

Beyond Rheology:

Interfacial

Measure the distinct rheological properties of the two-dimensional liquid/liquid or gas/liquid interface.

Tribo-Rheometry

Quantify friction and wear directly under a wide range of industrial conditions.

