

AGENDA

Mezger Applied Rheology Seminar and Ask-a-Rheologist Day

05/09/2019 Mezger Applied Rheology Seminar

- 8:45 Registration and welcome
- 9:00 Part 1: Rheology - viscosity and flow behavior
- Introduction to rheology and viscoelastic behavior
 - Simple viscosity test methods: Flow cups, capillary and falling ball viscometers; rotational tests, measuring systems, relative and absolute
 - Definition of terms: Shear stress, shear rate, shear viscosity
 - Newton's Law
- 10:00 Coffee break
- 10:15 Part 1: Rheology – viscosity and flow behavior continued
- Rotational (steady shear) tests: Controlled shear rate (CSR); controlled shear stress (CSS); shear load dependent flow behavior: Ideal viscosity behavior (Newtonian fluid); shear thinning (pseudoplastic fluid); zero shear viscosity; shear thickening (dilatant fluid)
- 11:15 Coffee break
- 11:30 Part 1: Rheology - viscosity and flow behavior continued
- Time dependent flow behavior: Structural breakdown and recovery (thixotropy); gelation, hardening, curing
 - Temperature dependent flow behavior: Heating, melting, curing, hardening, curing, crystallization
- Part 2: Rheology – elasticity and viscoelastic behavior
- Introduction viscoelastic behavior
- 12:30 Lunch (provided)
- 13:00 Part 2: Rheology – elasticity and viscoelastic behavior
- Definition of terms: (shear) strain or deformation, shear modulus, elasticity law, strain rate (shear rate); Ideally elastic deformation behavior
 - Introduction to oscillatory tests, definition of terms: Storage modulus and loss modulus, loss or damping factor, vector diagram
 - Oscillatory tests and applications using examples from industry
- 14:00 Coffee break

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- 14:15 Part 2: Rheology – elasticity and viscoelastic behavior
- Amplitude sweeps: linear viscoelastic (LVE) range, yield point, flow point
 - Frequency sweeps: unlinked polymers and curve crossover point, complex viscosity, zero-shear viscosity, Maxwell behavior; crosslinked polymers; dispersions and gels: storage stability
- 15:15 Coffee break
- 15:30 Part 2: Rheology – elasticity and viscoelastic behavior
- Time-dependent viscoelastic behavior: structural break and recovery, thixotropic behavior; gel formation, hardening, curing
 - Temperature-dependent viscoelastic behavior (DMTA): melting, glass transition; cooling, crystallization; gel formation, sol / gel transition; hardening, curing
 - Testing solid torsion bars; extensional viscosity
- 16:00 End of Mezger seminar

05/10/2019 Ask-a-Rheologist Workshop

- 9:00 Show and Tell: Rheometer Basics
- 9:15 Measurements: Rotational Tests (Flow Curves, Thixotropy, Temperature Sweeps)
- 10:00 Coffee break
- 10:15 Measurements: Oscillatory (Amplitude Sweeps, Frequency Sweeps, Temperature Sweeps)
- 12:30 Lunch (provided)
- 13:00 Show and Tell: Overview of Advanced Measurement Capabilities
- 13:30 Bring your data and samples for time with the experts
- 16:00 End of Ask-a -Rheologist Day