

# Anton Paar Rheology Seminar 2023

## PROGRAM DAY 1

09:00	Welcome	
09:15	Introduction of the company Anton Paar	
09:20	<p>Rheology, theory: viscosity and flow behavior</p> <ul style="list-style-type: none"> <li>-- introduction: rheology, viscoelastic behavior</li> <li>-- simple viscosity test methods: flow cups, capillary and falling ball viscometers, rotational tests using relative and absolute measuring geometries, concentric cylinders, cone-and-plate, parallel plates</li> <li>-- definition of terms: shear stress, shear rate, (shear) viscosity, viscosity law of Newton</li> <li>-- rotational tests: controlled shear rate (CSR), controlled shear stress (CSS), application diagrams with examples of industrial users</li> <li>-- ideally viscous (Newtonian) flow behavior</li> <li>-- shear-thinning (pseudoplastic) flow behavior, zero-shear viscosity of polymers</li> </ul>	
11:00	Coffee break	
11:15 for 2 groups	Group 1 Hands-on session	Group 2 Continued: rheology theory
12:30	Lunch time	
13:45 for 2 groups	Group 1 Continued: rheology theory	Group 2 Hands-on session
15:00	Coffee break	
15:30	<p>(continued: rheology, theory: viscosity and flow behavior)</p> <ul style="list-style-type: none"> <li>-- shear thickening (dilatant) flow behavior</li> <li>-- yield point, diverse test conditions and analysis methods</li> <li>-- time-dependent flow behavior: structure break and recovery, thixotropic behavior, curing</li> <li>-- temperature-dependent flow behavior: heating, melting, cooling, crystallization, hardening, curing</li> </ul>	
16:45	Application discussion	
17:30	End	
19:00	Dinner	

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## PROGRAM DAY 2

09:00	<p>Rheology, theory: elasticity and viscoelastic behavior</p> <ul style="list-style-type: none"> <li>-- introduction: viscoelastic behavior</li> <li>-- definition of terms: (shear) strain or deformation, shear modulus, elasticity law (according to Hooke), strain rate (shear rate)</li> <li>-- ideally elastic deformation behavior</li> <li>-- oscillatory tests: introduction, definition of the terms: storage modulus and loss factor modulus, loss or damping factor, vector diagram, application diagrams with examples of industrial users</li> <li>-- amplitude sweep: linear viscoelastic (LVE) range , yield point and flow point</li> </ul>	
10:30	Coffee break	
10:45 for 2 groups	Group 1 Hands-on session	Group 2 Continued: rheology theory
12:00	Lunch time	
13:15 for 2 groups	Group 1 Continued: rheology theory	Group 2 Hands-on session
14:30	Coffee break	
14:45	<p>(continued: rheology, theory: elasticity and viscoelastic behavior)</p> <ul style="list-style-type: none"> <li>-- frequency sweep: uncrosslinked polymers, curve crossover point, complex viscosity, zero-shear viscosity, Maxwell behavior; crosslinked polymers; dispersions and gels: long-term storage stability</li> <li>-- time-dependent viscoelastic behavior: structural break and recovery, thixotropic behavior; gel formation, curing</li> <li>-- temperature-dependent viscoelastic behavior (DMTA): heating, melting, glass transition; cooling, crystallization; sol / gel transition; gel formation, curing</li> <li>-- tests with solid torsion bars, tensile tests</li> </ul>	
15:45	Application discussion	
16:30	End of the seminar	

## Venue

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**Biznis Hotel**  
Zelebaan 100  
9160 Lokeren  
Belgium

If you are delayed or ill on the day of the seminar please call:  
+32 (0)9 280 83 20 or mail to [marketing.benelux@anton-paar.com](mailto:marketing.benelux@anton-paar.com).

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