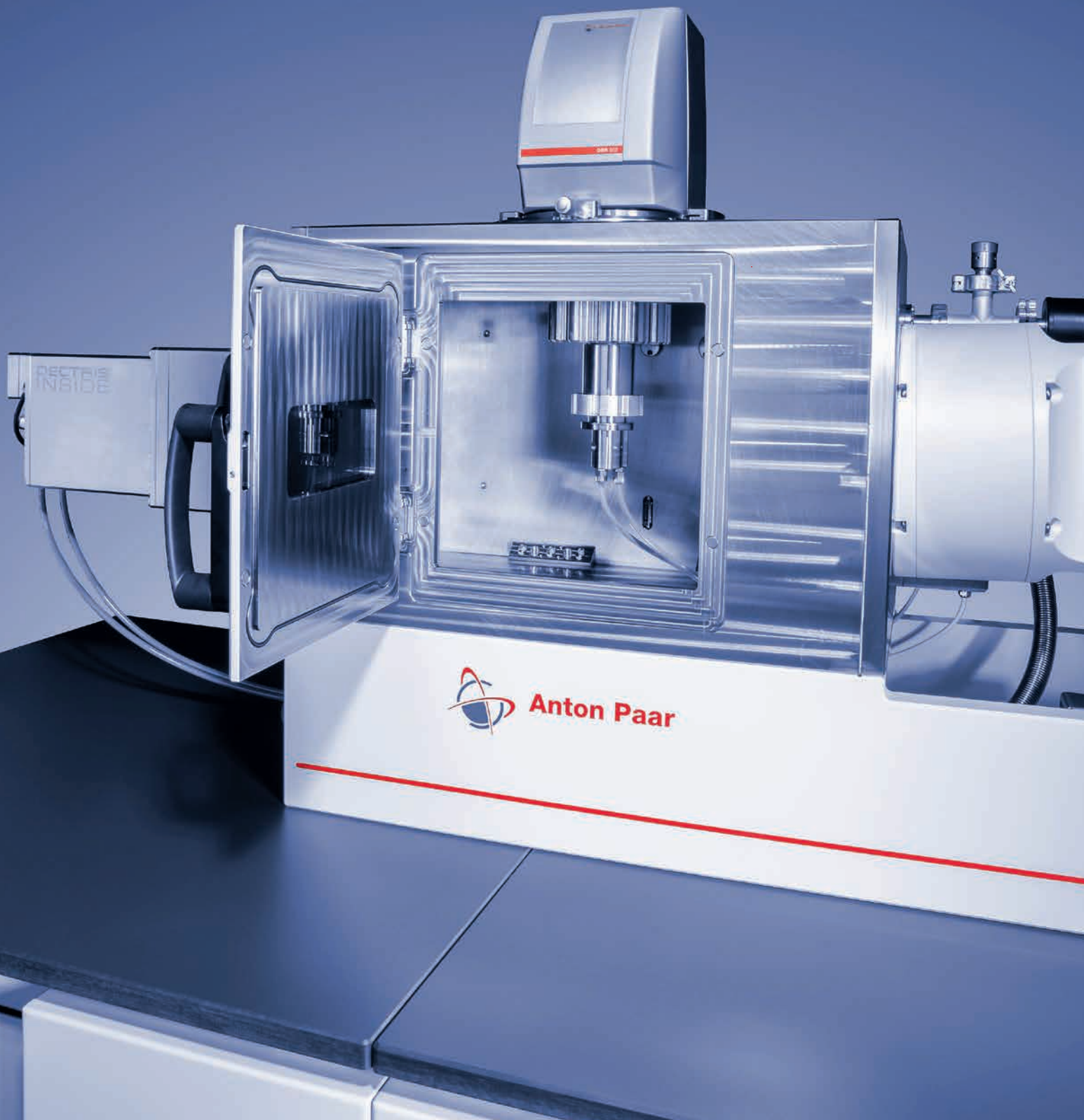


Rheology and SAXS:
Two instruments in one

RheoSAXS



Rheology and SAXS: Two complementary methods in one lab-scale instrument

Material research in all its complexity continuously calls for new analysis solutions to solve sophisticated issues in one go, and often requires the visualization of structural information in the nano scale to complement simultaneous investigation of the rheological behavior. The RheoSAXS system from Anton Paar is the first commercially available instrument that allows you to use both methods simultaneously in one setup in your lab. RheoSAXS resolves the combined information of your sample within minutes.

What's inside?

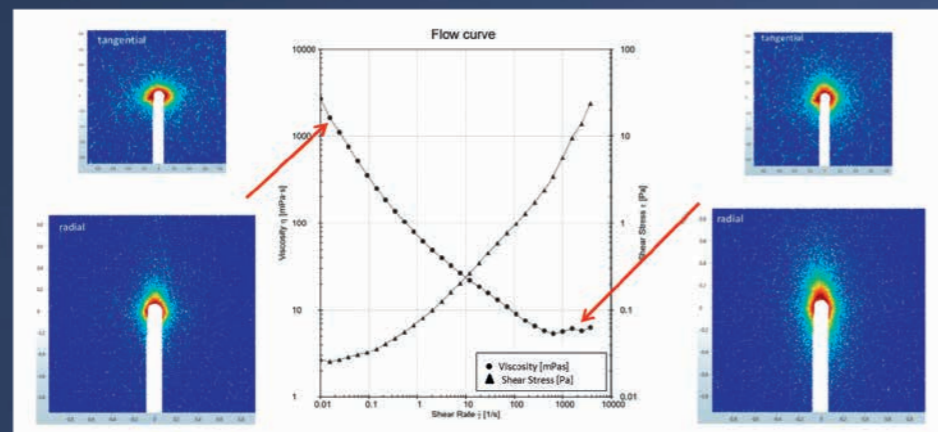
The lab-scale RheoSAXS system is the clever combination of two world-class Anton Paar instruments: The **SAXSpoint 2.0** system delivers the high quality you are used to with Anton Paar SAXS systems. Powerful X-ray sources, a scatterless collimation system, and high-resolution detectors build a brilliant beamline that results in a q_{\min} of 0.02 nm^{-1} .

Combined with the **DSR 502** dynamic shear rheometer (based on the renowned Anton Paar MCR rheometer series) makes the first lab-scale RheoSAXS system. This flexible and precise setup enables all standard measuring capabilities, e.g. for rotational and oscillatory rheological measurements.

Smart materials - an example: Graphene

RheoSAXS gives you the unique chance to directly correlate structural changes in the nm-range with macroscopic properties obtained via rheology. This is especially interesting for modern smart materials like graphene or graphene oxide. These materials exhibit many uncommon properties (e.g. strongest material ever tested, efficient heat and electricity conductivity, non-linear diamagnetism, etc.). The RheoSAXS setup allows studying the sophisticated alignment of these nm-thin sheets.

Structural behavior of graphene oxide particles under shear



Typical applications



X-ray transparent RheoSAXS measuring cell for axial and tangential measurement

- Measure either parallel or perpendicular to the flow direction to obtain the orientation distribution of the sample in respect to the flow direction.
- Filling volume: 8 mL
- Temperature control in the range from $-10 \text{ }^\circ\text{C}$ to $90 \text{ }^\circ\text{C}$

Fully integrated DSR 502 measuring head opens new opportunities for combined RheoSAXS measurements

- Accurate measurement of even low-viscosity dilute suspensions with a minimum torque in rotation of 10 nNm and a minimum torque in oscillation of 2 nNm.
- Features rotational and oscillatory measuring capabilities
- The RheoCompass software for detailed analysis of the rheological behavior can be used without limitations.

