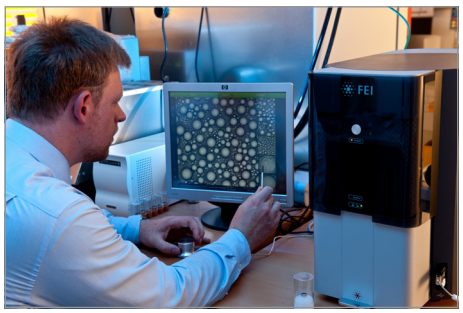
Center for Applied Nanotechnology

Analytics

Characterization of Nanomaterials: CAN GmbH offer investigation of material science related questions and nanomaterials with a selection of analytical methods, especially suited for the characterization of nanoscaled materials. The techniques applied include electron microscopy, UV-VIS/NIR spectroscopy and scattering techniques. Furthermore, analytics at CAN GmbH feature techniques for investigation of nanostructured surfaces, energy (heat) and gas transport through materials and the characterization of rheological properties. To match the special needs for analyzing nanoscaled material most measurement methods allow for a great flexibility and allow investigation of various sample types and geometries. An in-depth discussion previous to a measurement is offered to clear up questions in advance and further serve your needs.

Method [Instrument]
High-resolution transmission electron microscopy (HRTEM) [Philips CM300UT, Jeol JEM -2200 FS] *Micrographs of nanoparticles. Determination of crystal lattices and defects.* *Optional: Energy dispersive X-ray analysis (EDX) for elemental analysis*
High-resolution scanning electronen microscopy (HRSEM) [Leo 1550 ultra, FEI Phenom SEM] *Micrographs of nanostructured surfaces.* *Optional: Energy dispersive X-ray analysis (EDX) for elemental analysis*
Atomic Force Microscopy (AFM) [JPK Nanowizard] *Topographic images of surfaces.*
Dynamic light-scattering (DLS) [Malvern Zetasizer Nano, ZS] *Determination of hydrodynamic radius of colloidally solved particles.* *Optional: Zeta potential for characterization*
Asymmetric Field Flow Fractionation Flow (AF4) [Postnova AF2000] *Chromatographic method for distinction of particle size-distribution in solution.*

High-resolution transmission electron microscopy (HRTEM)



SEM characterization

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Method [Instrument]
UV-VIS spectroscopy [Cary 500 UV-VIS/NIR/IR] *Absorption measurement of liquid samples between 130 and 3300 nm in transmittance.*
Fluorescence spectroscopy [PTI Quantamaster, Horiba Fluorolog] *Emission measurements of luminescent samples between 250 and 800 nm.*
Small-angle X-ray scattering (SAXS) [Seifert DRF-Cu 3,0] *Determination of structures and particle forms in nanoscaled materials.*
X-ray diffraction (XRD) [Philips X'Pert] *Determination of the crystal structure and crystallinity in solids.*
ThermoGravimetry (TG) [Netzsch TG209 FI Libra] *Determination of organic and inorganic content.*
Viscosity and shear rate [Brookfield DV-II+Pro] *Determination of the viscosity of liquids and gels.*
Rheological characterisation [Malvern Gemini HR Nano] *Investigation of the deformation and flow properties of liquids, gels or solids.*
Thermal conductivity measurement [Netzsch LFA 447 NanoFlash] *Measurement of the thermal diffusion and conductivity.*
Contact angle masurements [Krüss DSA 100 Tensiometer] *Measurement of the contact angle on surfaces and fibres.*

For quotation requests and discussion of your specific needs in characterization or analyses of nanomaterials please contact us directly under **analytics@can-hamburg.de**.

Emission of nanoparticles

AF4 measurement device

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