Characterization methods for carbon materials

Norlab offers a whole range of testing instruments for carbon materials such as wood, coal, graphite, graphene and carbon black.

For powdery carbon materials, the particle size distribution plays a key role for the characterization, while for granulated samples, the meso- and macropores are often the focus of attention.

Investigation of micropores are relevant for both powdery and granulated samples, since the micropores usually exhibit a major part of the specific surface area, and most of the exchange and sorption processes take place there.

See also Characterization methods for MOFs and other synthetic, highly porous materials and Characterization methods for technical adsorbents, including zeolites and activated carbons. Wood, coal, graphite and carbon blacks mostly possess moderate specific surfaces, which are used for other applications.

Specifically carbon blacks, used as fillers for car tires, have led to a special parameter, the so-called STSA surface area, which is measured by gas adsorption and requires a BET analyzer.

Parameter	Method	Instrument
BET surface area and pore analysis	Gas adsorption	3P micro series 3P meso series 3P sync series 3P surface DX
Density	Gas pycnometry	3P densi 100
Dispersion stability	Analysis of the transmission and backscattering behaviour	MultiScan MS 20 dispersion stability analysis system
Particle dispersibility studies	Non-invasive NMR liquid relaxation technology	MagnoMeter XRS
Particle shape	Image analysis	BeVision D2 Bettersizer S3 Plus
Particle size, concentrated dispersions	Acoustic spectrometry	DT-1202 DT-100
Particle size, nanometer range	Dynamic light scattering	BeNano series
Particle size, powders	Laser diffraction	Bettersizer S3 Plus Bettersizer S3 Bettersizer 2600 Bettersizer ST

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Parameter	Method	Instrument
Pore volume and size distribution	Mercury intrusion porosimetry	Contract analysis Please ask for a quote
Solids concentration of suspensions	Non-invasive NMR liquid relaxation technology	MagnoMeter XRS
Water uptake and release	Dynamic vapor sorption (DVS)	3P graviSorb series
Wetted surface area of suspensions	Non-invasive NMR liquid relaxation technology	MagnoMeter XRS
Zeta potential, concentrated dispersions	Electroacoustic spectrometry	DT-1202 DT-310 DT-300