Characterization methods for catalysts

Norlab offers a whole range of testing and analysis instruments for catalysts.

In the characterization of catalysts (heterogeneous catalysis) a differentiation should be made between the analysis of reactive sites, which are responsible for the catalytic effect, and the carrier material, the starting material and the intermediates. On the one hand, the classical BET surface area and pore analysis play a role as well as the application of specific temperature programmed reactions and the analysis of reaction products. However, one can also choose the separate analysis by physisorption (BET and pore analysis) and chemisorption. During the production process, particle analyses, density determinations and other analytical methods play also a role.

Parameter	Method	Instrument
Active surface area	Chemisorption	AMI-300 series BenchCAT series µBenchCAT series
Active surface area	Temperature programmed reactions	AMI-300 series BenchCAT series µBenchCAT series
Analysis of reaction products	Temperature programmed reactions	AMI-300 series BenchCAT series µBenchCAT series
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
Gas mixture adsorption	Breakthrough curves	mixSorb L mixSorb S mixSorb SHP
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
Pore volume and size distribution	Mercury intrusion porosimetry	Contract analysis Please ask for a quote

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Parameter	Method	Instrument
Solids concentration of suspensions	Non-invasive NMR liquid relaxation technology	MagnoMeter XRS
Strength of reactive centers	Temperature programmed reactions	AMI-300 series BenchCAT series µBenchCAT series
Wetted surface area of suspensions	Non-invasive NMR liquid relaxation technology	MagnoMeter XRS