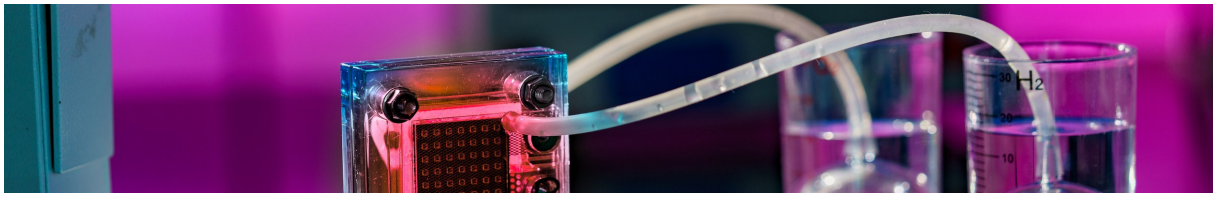
Characterization methods for batteries, fuel cells and solar cells

Norlab offers a whole range of testing and analysis instruments for batteries, fuel cells and solar cells.

Materials for batteries and fuel cells are powders, concentrated dispersions, membranes and also catalysts. The range of tasks and developmental directions cannot be comprehensively described here, but a brief outline shows the multiplicity and the necessity to apply several analytical methods in a complex way. The development of new materials for hydrogen storage and lithium ion batteries should result in high energy and power densities, e.g. in automobiles to release the power in a fast and efficient way. Research is currently searching for new anode materials, because graphite electrodes still limit the range of electric vehicles. A further point is research on nanostructured electrodes for fuel cells and superconductors.



Parameter	Method	Instrument
Active surface area of catalysts	Chemisorption	Contract analysis Please ask for a quote
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
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

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Parameter	Method	Instrument
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