

Dynamic Bet Specific Surface Area Analyzer For Powders And Porous Materials

Item Number: DS03



Introduction

High-precision dynamic BET specific surface area analyzer designed for rapid, accurate characterization of battery materials, catalysts, and porous powders. Features advanced thermal conductivity detection, ultra-low surface area sensitivity down to 0.0005 m²/g, and fast three-minute throughput.

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Application	Description	Key Benefit
Lithium-Ion Battery Cathode & Anode Quality Control	Characterization of specific surface area in graphite, LiCoO ₂ , LiMn ₂ O ₄ , LiFePO ₄ , Li ₄ Ti ₅ O ₁₂ , and nickel hydroxide precursors.	Ensures uniform binder distribution, optimizes slurry rheology, and maintains consistent electrochemical reaction kinetics.
Heterogeneous Catalyst & Petrochemical Sorbents	Routine surface monitoring of solid acid catalysts, supported metal catalysts, and activated gas purification sorbents.	Rapidly assesses active catalytic surface area and tracks pore blockage or thermal sintering during operational life cycles.
Advanced Technical Ceramics & Powder Metallurgy	Surface area profiling of fine alumina, zirconia, silicon carbide, titanium, and refractory alloy powders prior to compaction.	Predicts powder flowability, compaction green density, and final sintering shrinkage behavior to minimize structural defects.
Pharmaceutical Formulation & Excipient Analysis	Surface area determination of micronized active pharmaceutical ingredients (APIs) and porous particulate excipients.	Correlates directly with particle dissolution rates, bioavailability, blending uniformity, and compact compressibility.
Cement, Building Materials & Mineral Processing	Quality verification of supplementary cementitious materials, silica fume, calcined clays, and finely ground clinker.	Directly controls hydration reaction kinetics, setting rate, water demand, and ultimate compressive strength development.
Gas Filtration & Defense Protective Sorbents	Quality assurance testing for activated carbons, metal-organic frameworks (MOFs), and respiratory filter adsorbents.	Guarantees toxic gas adsorption capacity, breakthrough retention performance, and strict compliance with protective safety standards.

Specification Parameter	Value / Technical Detail
Model Identifier	DS03
Measurement Principle	Dynamic continuous-flow low-temperature nitrogen adsorption (GB/T 19587-2017 compliant)
Carrier & Adsorbate Gases	High-purity Helium (Carrier) and High-purity Nitrogen (Adsorbate)
Measurement Range	0.0005 m ² /g to no upper limit
Testing Methodology	Single-Point BET, Multi-Point BET, Comparative Reference Method
Measurement Accuracy Error	≤ ±3%
Measurement Repeatability Error	≤ ±3%
Analysis Time	Approximately 3 minutes per sample test cycle
Number of Analysis Stations	1 Active Measurement Workstation
Sample Tube Configuration	High-durability temperature-resistant GG-grade glass U-tube
Calibration Standard	GBW(E) 130275 National Certified Reference Standard Materials
Detection System	High-sensitivity, low-temperature thermal conductivity detector (TCD)
Calibration Mechanism	Dedicated proprietary precision standard volumetric gas injector

Specification Parameter	Value / Technical Detail
Operating Software	Dedicated analytical suite compatible with Windows 7 / Windows 10
Data Management Functions	Signal curve display, baseline auto-zeroing, report generation, curve comparison, print/export
Dimensions (W × D × H)	700 mm × 360 mm × 710 mm
Operating Power Supply	AC 220V ± 22V, 50 Hz ± 0.5 Hz
Ambient Operating Temperature	5°C to 35°C
Operating Relative Humidity	< 85% RH (non-condensing)