

ACCUPORE

PRECISE THROUGH-PORE
CHARACTERIZATION,
MADE SIMPLE

micromeritics.com/accupore



ACCUPORE SETS A NEW STANDARD IN CAPILLARY FLOW POROMETRY

AccuPore is the most precise through-pore porosity analyzer, delivering rapid, repeatable results across the widest sample range – no complex setup required. Meet the new benchmark for versatility, simplicity, accuracy, and ROI in through-pore analysis.

As the only 2-in-1 CFP system, AccuPore combines ultra-fast pressure ramp mode (for up to 10× faster screening) with high-precision pressure step mode – delivering rapid QC decisions and detailed R&D characterization on a single platform. With smart automation, simplified method setup, and industry-leading accuracy, AccuPore makes precise porometry simple.

PRECISE THROUGH-PORE ANALYSIS, UNBEATABLE SIMPLICITY

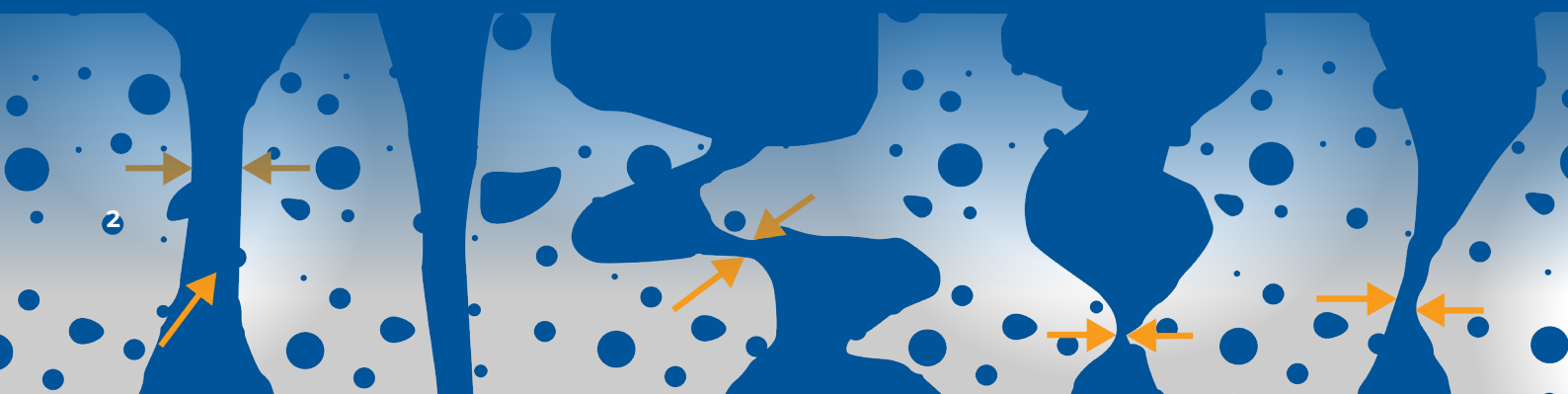
Through-pore measurements are notoriously challenging: pore sizes vary widely, thick or tortuous materials obscure flow paths, and traditional instruments force compromises between speed and accuracy.

TRADITIONAL CAPILLARY FLOW POROMETRY (CFP) STRUGGLES WITH:

- Accurately identifying the largest pores in membranes with irregular structure
- Balancing speed and precision in high-throughput QC
- Maintaining reproducibility across operators and labs

ACCUPORE SOLVES THESE CHALLENGES WITH A SINGLE, VERSATILE PLATFORM, DELIVERING:

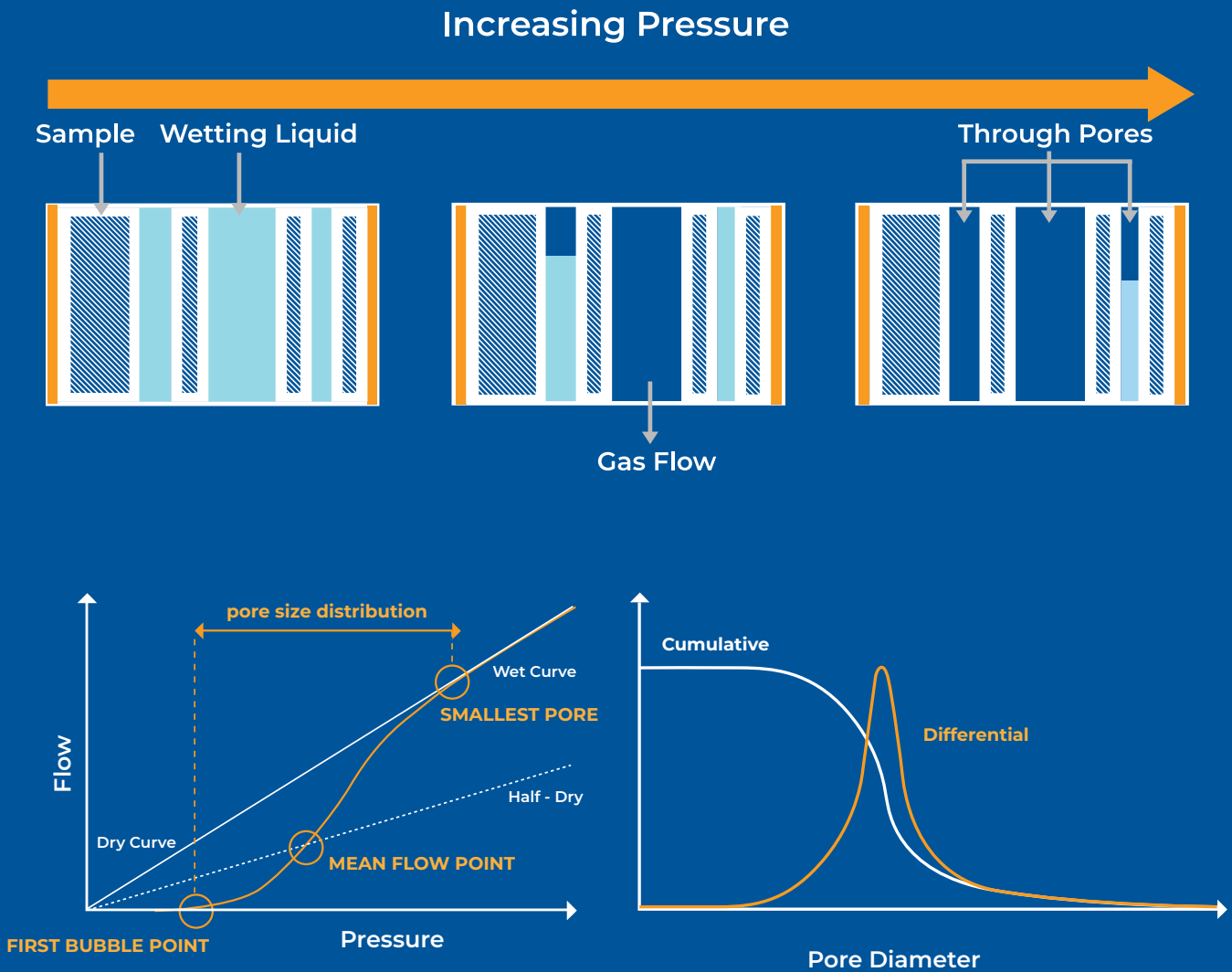
- Most precise largest pore measurement in CFP
- Only 2-in-1 ramp + step system
- 10× faster QC screening with ramp mode
- 2× more data points than competitors
- 0.1% accuracy for known materials
- Measures largest pore size up to 500 μm
- Saves up to \$90,000 annually
- Only UL/CSA certified CFP system
- 100% remote operation



ACCUPORE PROVIDES A COMPLETE PICTURE OF PORE ARCHITECTURE THROUGH

4 KEY MEASUREMENTS	
BUBBLE POINT, LARGEST PORE: The lowest pressure at which flow occurs.	SMALLEST PORE: Intersection of the wet curve with the dry curve.
MEAN FLOW PORE: Intersection of the wet curve with the dry curve divided by two — the half-dry curve.	PORE SIZE DISTRIBUTION: A continuous distribution of the differential and cumulative pore size reveals the overall structure of pores in a membrane.

How CFP measures largest pore (bubble point), smallest pore, mean flow pore, and full pore size distribution



ACCUPORE

FEATURES THAT TRANSFORM THROUGH-PORE MEASUREMENT

[LEARN MORE →](#)

UNMATCHED ACCURACY

SmartFlow high-speed control and data collection

Processes measurements at up to 20 Hz, delivering **2× more data points** than competing systems for unmatched curve resolution and repeatability, with precise pressure control for accurate bubble point and pore size measurements.

ULTIMATE VERSATILITY

The 2-in-1 CFP system with both ramp and step modes

Run **10× faster ramp measurements** for routine QC screening or switch to step mode for the highest-precision characterization – all on one instrument.

Flexible, easy-to-use sample chamber

Simple tool-free loading, measuring **13 mm, 25 mm, and 47 mm-diameter samples** in one chamber – allowing you to move seamlessly from R&D to QC without reconfiguring your setup.



LOWER OPERATING COSTS

Auto-switching gas supply

Automatically switches between compressed air and bottled gas to reduce the cost of operation **by up to \$90,000 annually** in high-throughput labs.

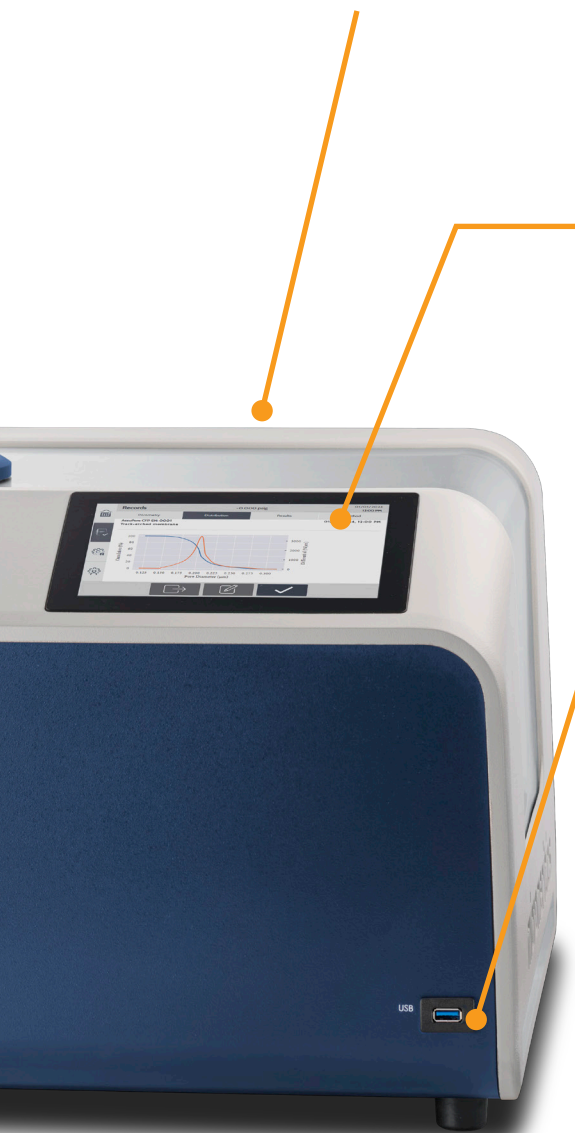
SIMPLIFIED OPERATION

Intuitive Breeze™ interface with built-in methods

Built-in methods simplify setup and method development, enabling **operator-independent results** and fast, consistent measurements with or without a PC.

Convenient USB and network connectivity

Multiple points of access for easy data transfer or peripheral device integration via USB, Ethernet, or Wi-Fi – enabling 100% remote operation



ACCUPORE ALSO DELIVERS:

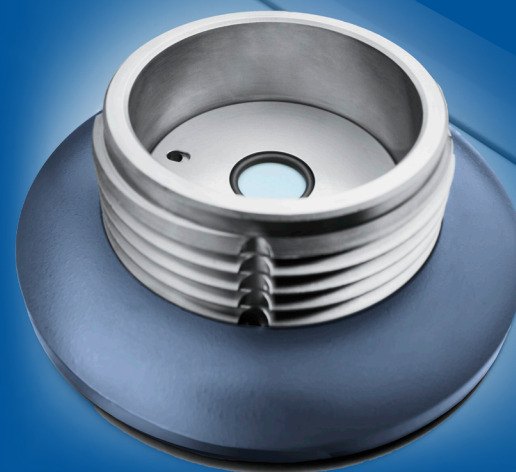
- **MIC Net instrument networking:**
Synchronize methods and results, execute measurements **100% remotely**, and seamlessly integrate with LIMS across instruments and sites.
- **Wide pore size range:**
High sensitivity even at low pressures enables accurate measurement of both very small and very large pores **up to 500 µm** in diameter.
- **Industry-leading bubble point accuracy:**
Better than **0.1% accuracy** for known reference materials, enabling confident QC decisions and tighter process control.
- **Full compliance for safety and defensible results:**
The only CFP system with **complete UL/CSA certification and ASTM F316-compliant** methodology for safe, auditable operation in regulated environments.

VERSATILE | ACCURATE | FAST | SIMPLE

HIGH-PRECISION MEASUREMENTS

AccuPore’s **SmartFlow** is an advanced flow control system engineered for precision, sensitivity, and stability. High-resolution 24-bit electronics operating at 20 Hz deliver exceptional signal quality and system response, even during rapid pore-opening events, producing 2× more data points than competing CFP systems, yielding unmatched curve resolution and repeatability.

With eight complementary transducers and controllers, SmartFlow maintains stable control across wide pressure and flow ranges, ensuring operator-independent, highly repeatable results for both QC screening and detailed R&D characterization.



INDUSTRY-LEADING BUBBLE POINT ACCURACY

SmartFlow also enables direct measurement of **true bubble point** through a proprietary flow-controlled method, providing unmatched accuracy and repeatability. Unlike conventional estimates of bubble point from pressure ramps that lack sensitivity and can underestimate the largest pore diameter, SmartFlow ensures precise bubble point measurements up to 500 µm. AccuPore delivers **better than 1% accuracy** for unknown materials and **better than 0.1% accuracy** for known reference materials, enabling confident pass/fail decisions and tighter process control.

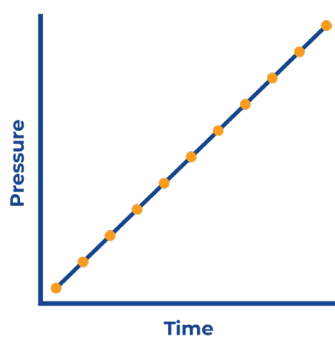
First Bubble Point Size (µm)				
Measurement	Track-etched membrane A	Track-etched membrane B	Track-etched membrane C	Track-etched membrane D
1	1.153	0.309	0.092	0.055
2	1.151	0.309	0.092	0.055
3	1.170	0.308	0.092	0.054
4	1.164	0.309	0.091	0.054
5	1.162	0.308	0.092	0.054
6	1.180	0.308	0.091	0.054
7	1.166	0.309	0.091	0.054
8	1.178	0.310	0.091	0.054
9	1.175	0.308	0.090	0.054
10	1.165	0.309	0.090	0.054
Average	1.166	0.309	0.091	0.054
Relative standard deviation	0.83%	0.22%	0.72%	0.54%

ONE INSTRUMENT, TWO WORKFLOWS

AccuPore is the only 2-in-1 CFP system that offers both ultra-fast ramp mode and ultra-precise step mode in a single platform. SmartFlow provides the precision control needed for both modes, ensuring the correct measurement is available from routine qualification to detailed characterization.

RAMP MODE

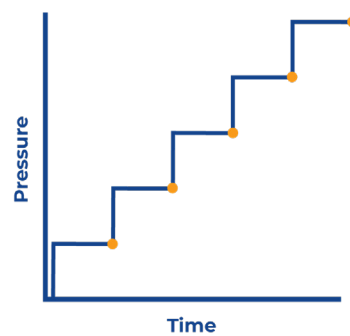
Increasing pressure at a steady rate shortens measurement time, delivering rapid, highly repeatable results up to 10× faster than step mode, ideal for high-throughput QC and routine screening.



10× faster screening with high-resolution data in minutes.

STEP MODE

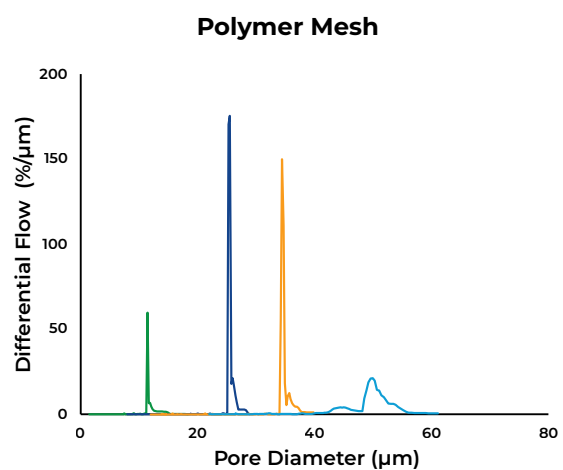
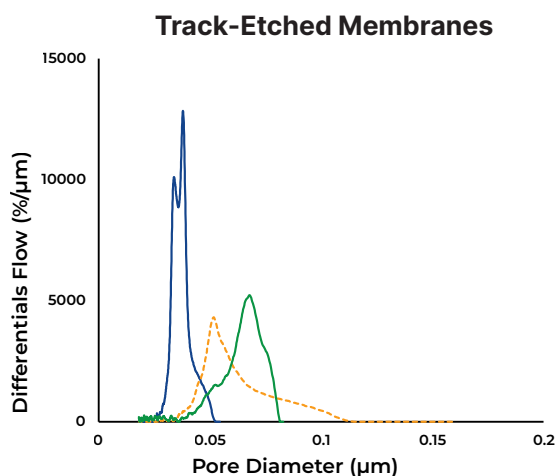
Pausing to equilibrate fully at each pressure allows all pores to fully empty, allowing the resolution of complex pores and thick or tortuous structures.



Caption: Maximum resolution and absolute pore size accuracy for method development and validation.

DETAILED MEASUREMENTS, NO CURVE FITTING

High resolution, low-noise pressure-flow curves reveal highly detailed pore size distributions that reflect physical pore architecture – **without curve fitting or post-processing**. This delivers operator-independent results that are reproducible enough for QC and detailed enough for R&D.



ULTIMATE SAMPLE SIZE FLEXIBILITY

Seamlessly and rapidly switch between 13 mm, 25 mm, 47 mm samples, **all within the same sample chamber**. Precision sample supports enable reliable measurements at the highest pressures, even for thin or weak membranes.



ENSURE STABILITY WITH OPTIMIZED WETTING FLUIDS

Micromeritics wetting fluids ensure complete pore filling and stable measurements, supporting both new material characterization and legacy techniques.

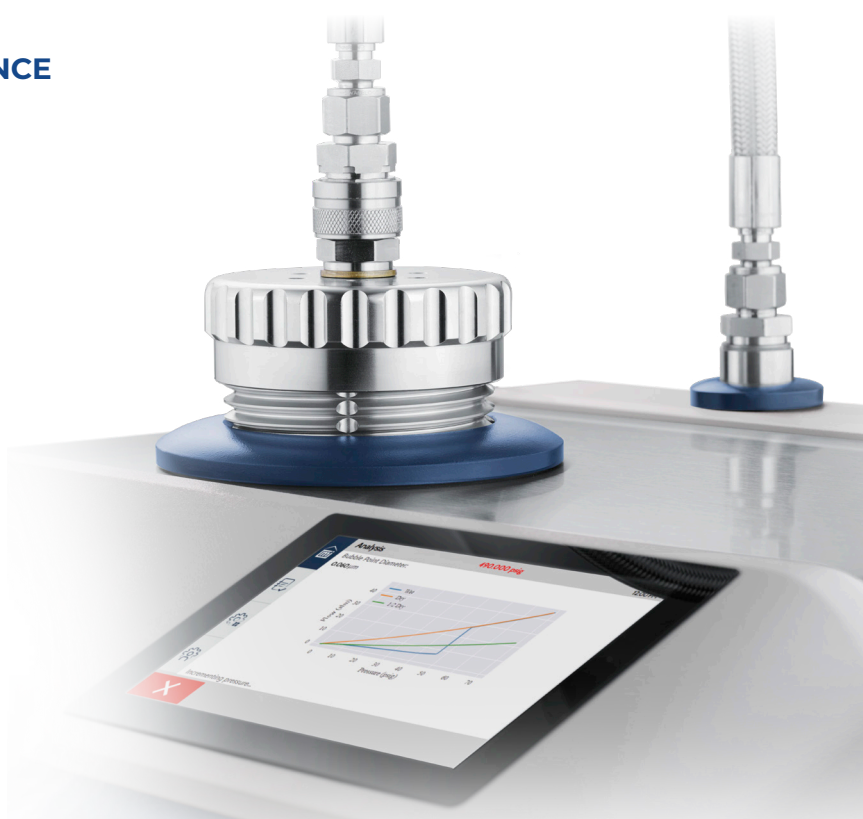
- **Galwik's** low surface energy and vapor pressure help fill pores completely and resist evaporation during analysis.
- **Porewik** is available for legacy method compatibility and specific demanding applications.



CERTIFIED SAFETY AND COMPLIANCE

AccuPore is the **only CFP system** with **full UL/CSA certification and EMC compliance**, ensuring safe installation and operation in regulated lab and production environments.

Vented pressure cap seal
Real time pressure indicator
CB-scheme
UL/CSA 61010-1, -2-081





ANALYSIS MADE SIMPLE

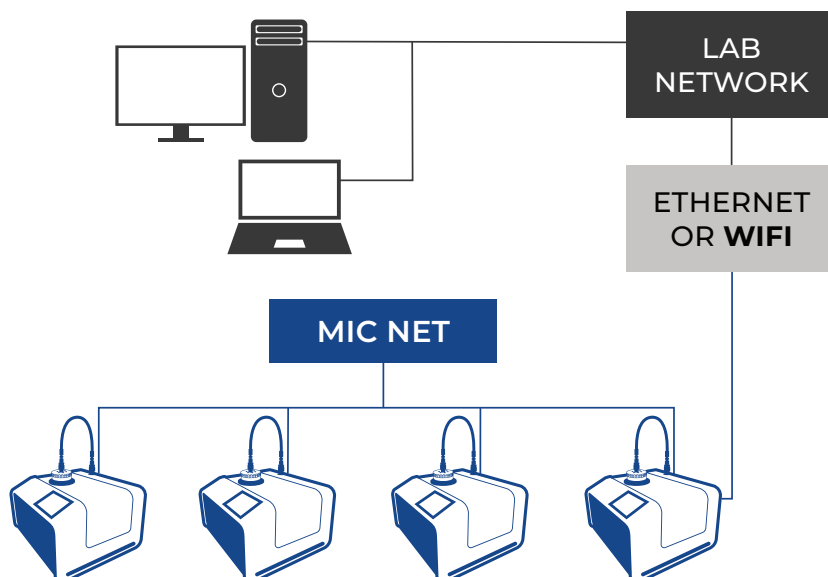
The intuitive **Breeze™** touch interface makes through-pore analysis fast and simple. Run a measurement, review past results, send a report to print or to LIMS directly from the instrument – no need for a benchtop PC.

Breeze also supports **100% remote operation**. Execute measurements, view the status of multiple instruments, or review results from anywhere.

Automatic results generation and retrieval:
Bubble point (largest pore diameter) Mean pore diameter Smallest pore diameter Pore size distribution
Tabular review of detailed test data
Porometry and Pore Size Distribution curve display
Generate reports including print and export to file
Export via network or USB

STANDARDIZE WORKFLOWS WITH MIC NET

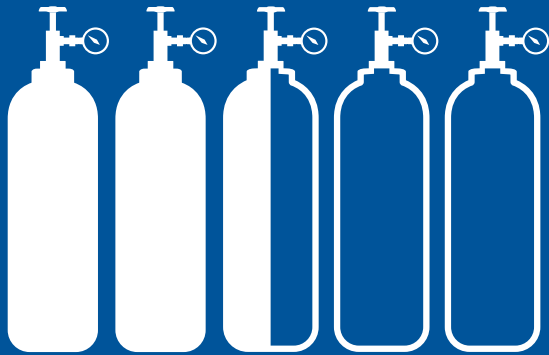
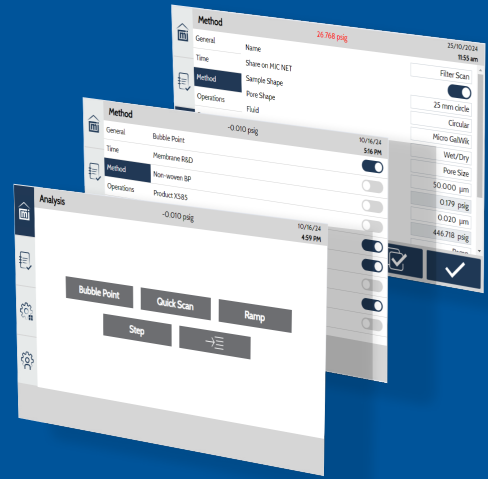
MIC Net is an instrument-to-instrument network that standardizes methods, centralizes results, and enables consistent QC across instruments, labs, and sites. Eliminate method drift and lost data and unlock reproducible, auditable workflows at scale.



RIGHT-FIRST-TIME MEASUREMENT, EVERY TIME

Whether you require bubble point, routine pore size distribution, or detailed structure analysis, the AccuPore makes precise porosimetry simple.

- SmartFlow pressure control makes operation easy with minimal training
- Fewer settings and smart automation enable fast, repeatable method development
- Define, store, and recall your methods easily with Method Library – for right-first-time measurements, every time



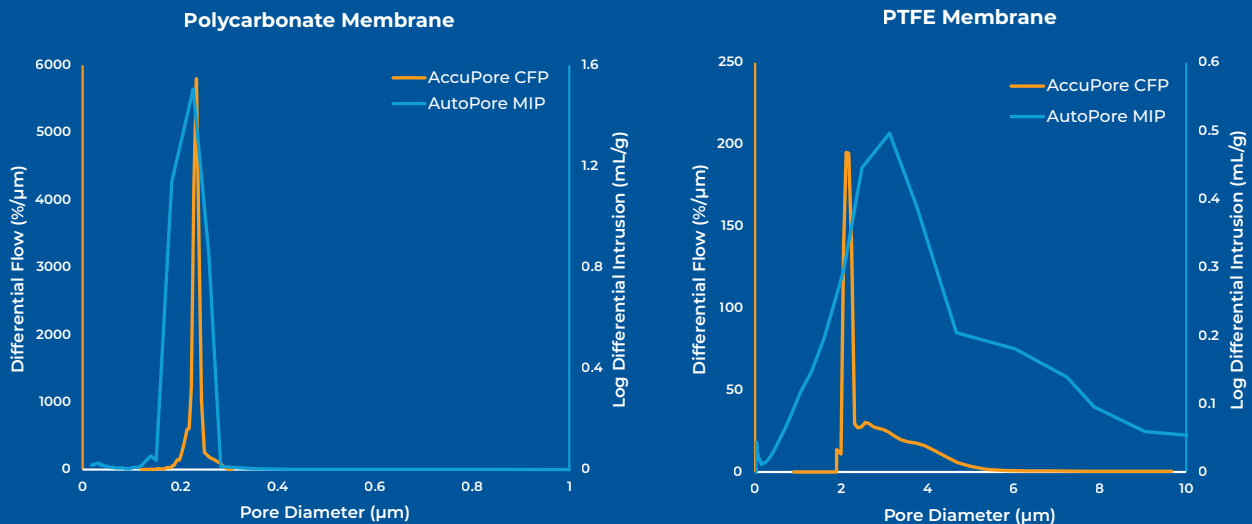
SMART-AUTOMATED GAS SWITCHING SAVES THOUSANDS

Reduce operational costs with intelligent gas source selection. The AccuPore uses a compressor for low-pressure operations (bubble point measurement and large pores) and automatically switches to high-pressure bottled gas for small pore analysis.

Reduce bottled gas consumption **by up to 1,500 cylinders per year** in high-throughput labs – equivalent to up to **\$90,000 in annual savings**.

MOVE QUICKLY FROM DATA TO DECISION

MicroActive software streamlines data processing, offering detailed plotting, analysis, and reporting, including statistical process control charts and results overlays. Easily co-plot CFP results with mercury intrusion porosimetry (MIP) data from the AutoPore for a comprehensive view of pore architecture.



SPECIFICATIONS

CAPABILITIES

Performance Specifications

Technique	Capillary Flow Porometry ASTM F316
Measurement Method	Pressure Ramp Pressure Step
Pore Size Range	0.013 μm to > 500 μm^*
Max Pressure	500 psi / 35 bar
Max Flow Rate	200 L/min
Analysis Gas Supply	Air or N_2
Operational Modes	Bubble Point (Direct Measure) Capillary Flow Porometry by: Dry/Wet, Wet/Dry, Wet/Calculated Dry
Physical Dimensions	57 cm Wide x 61 cm Deep
Curve Resolution	>1000 data points per run 20 Hz internal data processing speed
Sample Sizes	25 mm diameter standard Adapters available for 13 mm, 47 mm diameter

*Depending on wetting fluid

Features

SmartFlow advanced pressure control ensures advanced accuracy and sensitivity
2-in-1 step and ramp modes for versatility between speed and precision
SmartFlow rapid data collection delivers more data in less time
Automatic gas source selection reduces cost of operation by up to \$90K annually
Built-in Breeze™ touchscreen enables simple setup and reproducible results
Versatile sample chamber supports 13 mm, 25, mm, and 47 mm-diameter samples
100% remote PC control and data analysis increases efficiency and uptime
MicroActive software enables advanced analysis and reporting
Data transfer via USB and wired (ethernet) or wireless (Wi-Fi) network communication
Network printing including wireless via Airprint for simple report creation
MIC Net network syncing allows for standardization across instruments and sites

RELEVANT APPLICATIONS

AccuPore is designed for high-precision, high-pressure applications where through-pore accuracy directly impacts performance, safety, and regulatory compliance.



BATTERY AND FUEL CELL SEPARATORS AND MEMBRANES

Optimize the rate of ion transport and physical separation to ensure device safety. Precision sample supports and advanced pressure control enable accurate measurements up to high pressure for small pores and thin membranes.



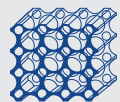
FILTRATION MEDIA

Predict and ensure size-based selectivity and mass-transfer rate by optimizing the number and size of pores.



NON-WOVENS

Common choices for filtration media, non-wovens are often characterized by a broad distribution of pore sizes due to their production methods. In-plane porosity and irregular pore shapes make steady flow determination of bubble point especially important.



METAL AND CERAMICS

Preferred for thermal, physical, and chemical resistance, metals and ceramics often have highly porous structures. The three-dimensional porosity of these materials makes it especially important to measure porosity in the direction of intended flow.

APPLICATION SUPPORT

micromeritics.com/apps

As a Malvern Panalytical company, Micromeritics provides the global training, service, and support you need to continuously drive your analytical processes at the highest level. We help you increase the return on your investment, and ensure that as your analytical requirements grow, we're there to support you. Our worldwide team of specialists adds value to your business processes by ensuring applications expertise, rapid response, and maximum instrument uptime.



Expert, lifetime applications support for Micromeritics customers.



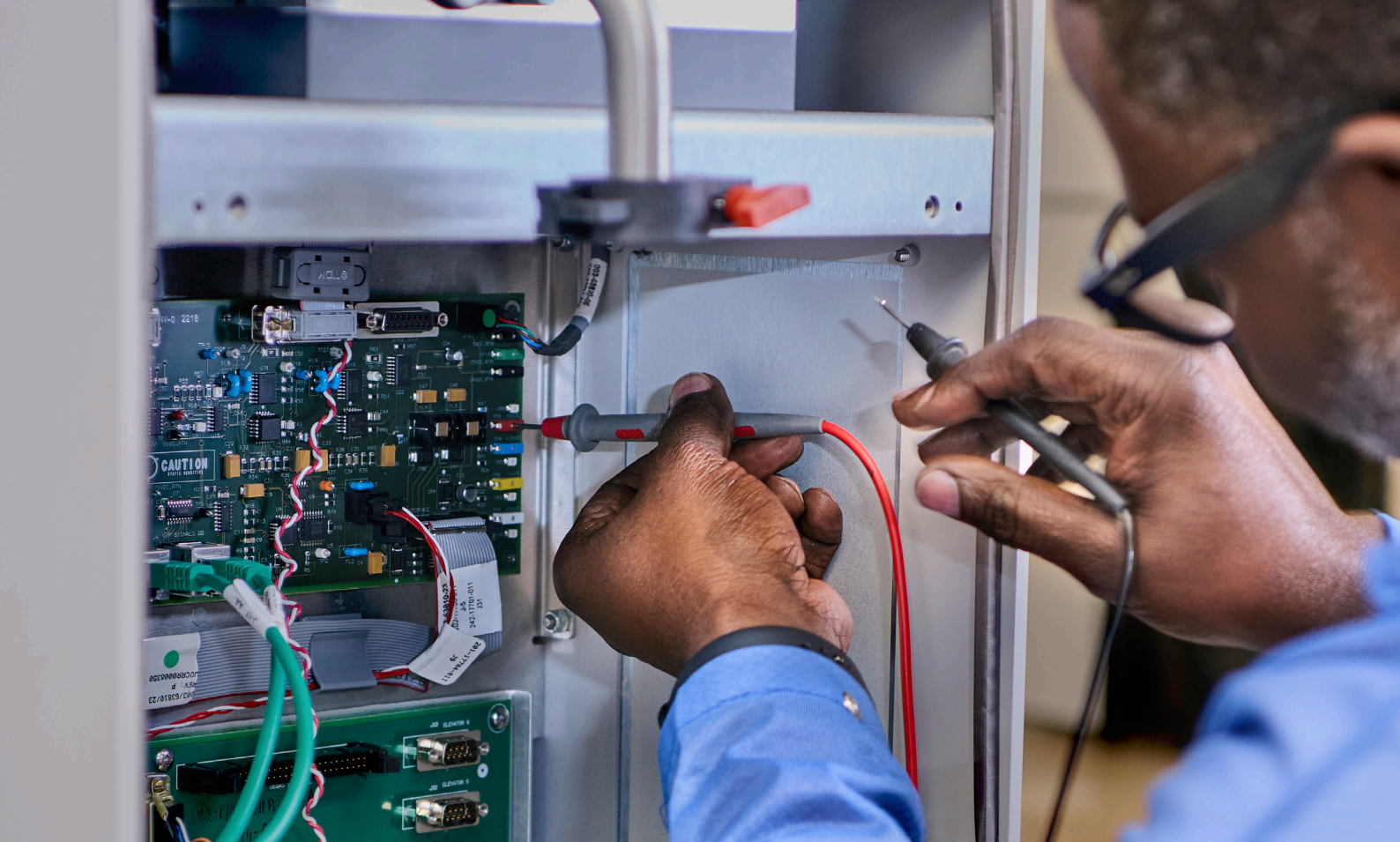
Free training courses, application notes, and how-to videos available on www.micromeritics.com



Application-specific, hands-on training available in Micromeritics USA, Germany, Korea, and China facilities



Collaborations with industrial and academic partners to continually improve the quality of measurements and interpretation of material characterization data



SERVICE SUPPORT

micromeritics.com/service

Customer service is at the heart of what we do, with over 10,000 installations during the past 60 years.

ISO-9001 CERTIFIED SERVICES



1 Year Parts and Labor
Warranty



Preventative Maintenance



Maximized uptime



Reduced cost of ownership

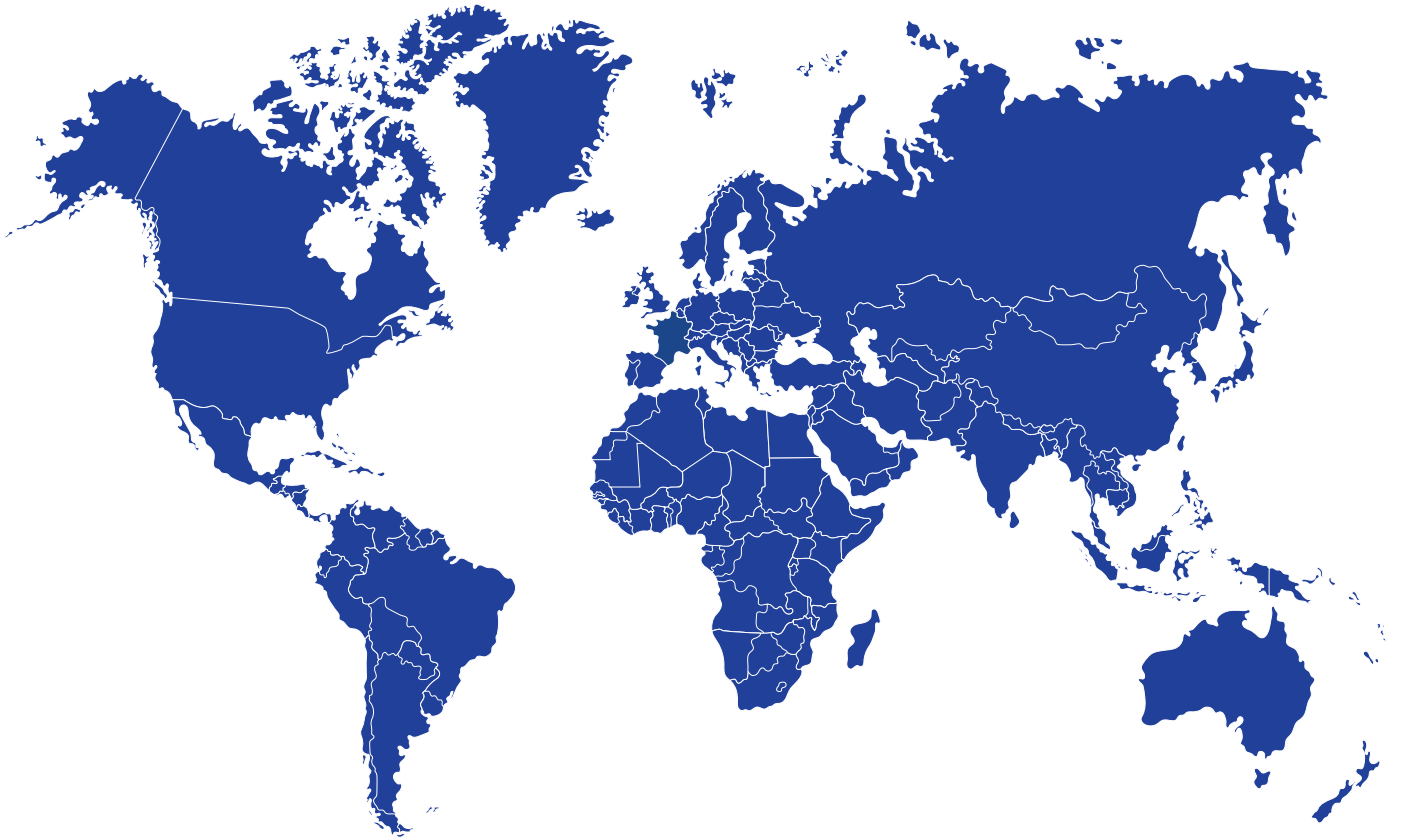


Well-trained users



Predictable, easy-to-budget-for
expenses with protection from
unexpected operating costs

Micromeritics offers a full range of instrument installation, preventive maintenance and repair services to support instruments through their full life cycle. On-site and factory services are provided through our global network of factory trained and certified service engineers.



WORLDWIDE PRESENCE

micromeritics.com/worldwide →

Malvern Panalytical has a global footprint, with R&D and manufacturing sites in North America, Europe, and Asia, and more than 2,500 employees. **Over 12,000 Micromeritics systems** are used every day in the labs of the most innovative companies and the most prestigious government and academic institutions. More customers choose Micromeritics for our powdered and porous material characterization systems than all of our competitors combined.

Get **MORE** from your lab with the powerful combination of Micromeritics and Malvern Panalytical

SCAN QR CODE FOR
MORE INFORMATION



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