

Simple Porometer

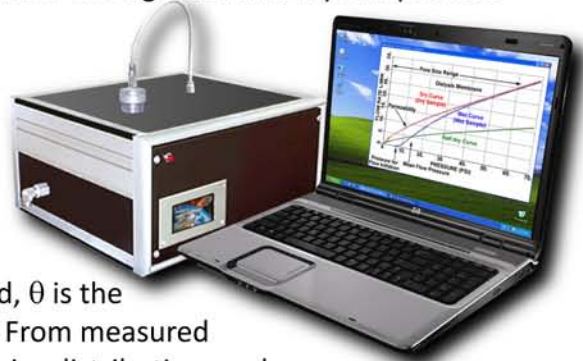
Principle

A wetting liquid is allowed to spontaneously fill the pores in the sample and a nonreacting gas is allowed to displace liquid from the pores. The gas pressure and flow rates through wet and dry samples are accurately measured.

The gas pressure required to remove liquid from the pores and cause gas to flow is given by:

$$D = 4 \gamma \cos \theta / p$$

where D is the pore diameter, γ is the surface tension of liquid, θ is the contact angle of liquid, and p is the differential gas pressure. From measured gas pressure and flow rates, the pore throat diameters, pore size distribution, and gas permeability are calculated.



Applications

The unique features of the instrument, especially its ability to generate highly reproducible data quickly, make it highly suitable for quality control and process control operations. The instrument is used in these applications in a wide variety of industries.

Capabilities

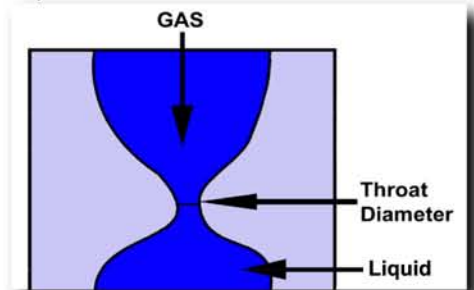
- Diameter of the most constricted part of a through pore (pore throat)
- Bubble Point (the largest through pore throat diameter)
- Mean flow pore diameter (50% of flow is through pores smaller than the mean flow)
- Pore diameter range
- Pore distribution:

$$f = -d[(f_w/f_d) \times 100] / dD$$

f_w = flow rate through wet sample

f_d = flow rate through dry sample

- Gas permeability in many desired units including Frazier, Gurley, Rayl, & Darcy



Specifications

Pressure Accuracy: 0.15% of reading

Test Pressure: 100 psi instrument version (700 kPa instrument versions)

Pressure & Flow Resolution: 1/60,000 of full scale (1 part in 60,000)

Maximum Pore Size Detectable: 80 μm

Flow Rates: Up to 200 SLPM (standard liters per minute)

Sample Sizes: 1" diameter (up to 1.5" thick)

Sample Geometry: Sheets, Rods, Tubes, Hollow Fibers, Cartridges, Powders, etc.

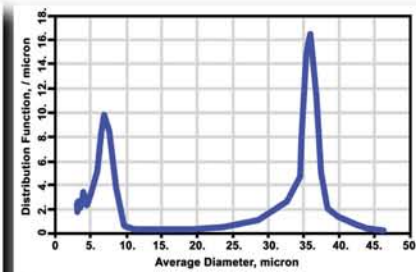
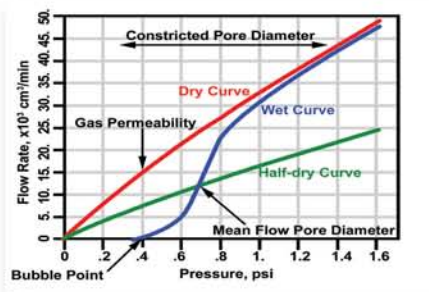
Pore Size Range: 80 μm to 0.06 μm

Minimum Pore Size Detectable:

Fluid	Surface Tension dynes/cm	Diameter μm
Water	72	0.30
Mineral Oil	34.7	0.14
Petroleum Distillate	30	0.12
Denatured Alcohol	22.3	0.09
Silwick	20.1	0.08
Porewick	16	0.07
Galwick	15.9	0.07

Features

- Fully automated and user friendly
- Only a few minutes per test
- Preset test parameters
- Very little operator time and involvement
- Ideal for quick generation of highly reproducible data
- Variety of sample shapes and sizes
- Very little machine maintenance
- Real time graphic display
- Windows based software for all control, measurement, data collection, data reduction, and report preparation



Other Products

- Advanced Capillary Flow Porometer
- Average Fiber Diameter Analyzer
- Capillary Condensation Flow Porometer
- Complete Filter Cartridge Analyzer
- Clamp-On Porometer
- Compression Porometer
- Cyclic Compression Porometer
- Envelope Surface Area Analyzer
- Filtration Media Analyzer
- Gas Permeation Analyzer
- High Flow Porometer
- Integrity Analyzer
- In-Plane Porometer
- Multipoint Simultaneous
- Pore Structure Analyzer
- Micro flow Porometer
- Multi-Chamber and Multi-Mode Porometer
- Nanopore Flow Porometer
- QC Porometer
- Diffusion Permeameter
- Gas Permeameter
- Gas Diffusion Analyzer
- Liquid Permeameter
- Vapor Permeameter
- Water Vapor Transmission Analyzer
- Liquid Extrusion Porosimeter
- Mercury/NonMercury Intrusion Porosimeter
- Water Intrusion Porosimeter (Aquapore)
- BET Liquisorb
- BET Sorptometer
- Gas Pycnometer
- Mercury Pycnometer

Also Available:

- Testing Services
- Consulting Services
- Short Courses

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