

Microflow Porometer

Description

The PMI Microflow Porometer is a Capillary Flow Porometer but with the ability to measure permeability in nearly impermeable materials. This instrument is user-friendly and non-destructive. The Microflow Porometer is an asset to quality control and R&D environments.



Principle

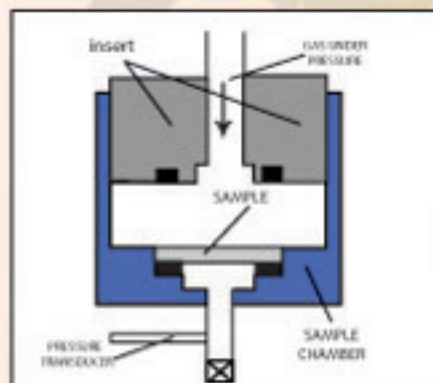
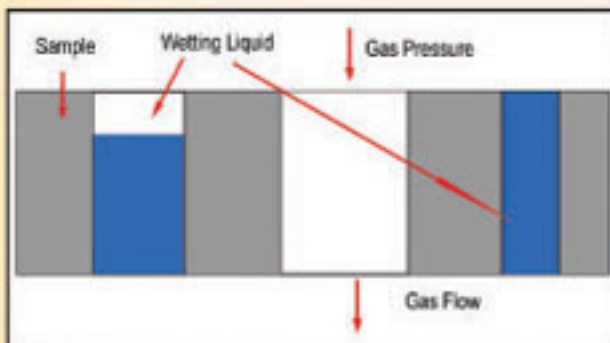
The PMI Microflow Porometer is a Capillary Flow Porometer with the ability to measure pore structure and permeability of nearly impermeable materials. In this instrument a pressure transducer is located on the downstream side of the sample and the time rate of pressure change in the known volume of the down stream side of the sample chamber is used to compute very small flow rates.

$$F = (V_o T_s / T P_s) (dP / dt)$$

Where F is flow rate at standard temperature, T_s , and standard pressure, P_s , V_o is the volume of the down stream side of the sample chamber, T is test temperature, t is time, and P is test pressure. Flow rate through dry sample is measured with increasing differential pressure. The sample is wetted and flow rate is measured as a function of differential pressure, p , which is related to pore diameter, D .

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

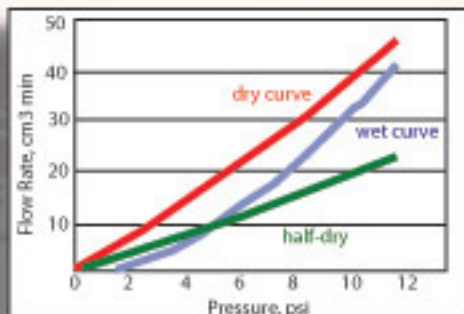
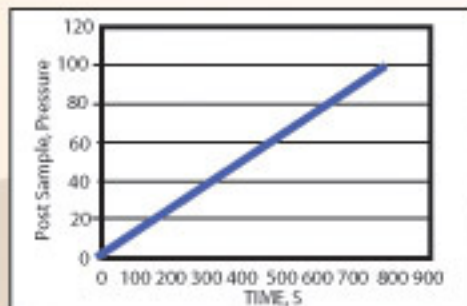
where γ and θ are surface tension and contact angle of wetting liquid respectively.



Features

- Samples permitting very low flow rate can be tested
- Very low permeability can be measured
- Fully automated
- Windows based simple operation

- Many optional features possible:
 - Sample under compressive stress
 - Elevated Temperature test
 - Determination of In-Plane Structure



Specifications

Pore Size Range: 0.013 - 500 microns

Permeability Range: 1×10^{-10} - 1×10^{-6} (microflow in cc/sec/m/torr)

Sample Size: 0.5" - 2.5" diameter

Pressure Range: 0 - 500 psi

Pressurizing Gas: Clean, dry, and compressed air or nonflammable and non-corrosive gas

Resolution: 1 in 20,000

Accuracy: 0.15% of reading

Mass Flow Transducer Range: 10 cm³/min - 500,000 cm³/min

Power Requirements: 110/120 VAC, 50/60 Hz (Others Available)

Dimensions: 30" H x 19" W x 18.5" D

Weight: 100 lbs.

Other Products

Average Fiber Diameter Analyzer
BubblePoint Tester
Capillary Flow Porometer
Complete Filter Cartridge Analyzer
Clamp-On Porometer
Compression Porometer
Cyclic Compression Porometer
Envelope Surface Area Analyzer
Filtration Media Analyzer
Gas Permeameter
High Flow Porometer
Integrity Analyzer

In-Plane Porometer
Multipoint Simultaneous Pore Structure Analyzer
Multi-Chamber and Multi-Mode Porometer
Nanopore Flow Porometer
QC Porometer
Diffusion Permeameter
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

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