AUTOMATED ADVANCED CAPILLARY FLOW POROMETER

ACFP-1020A

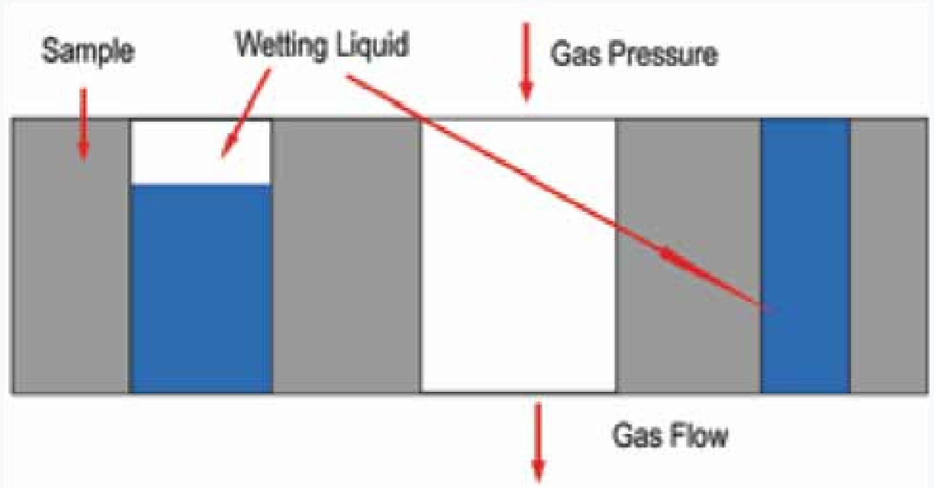
Not just products... solutions.

PRINCIPLE OF POROMETRY

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

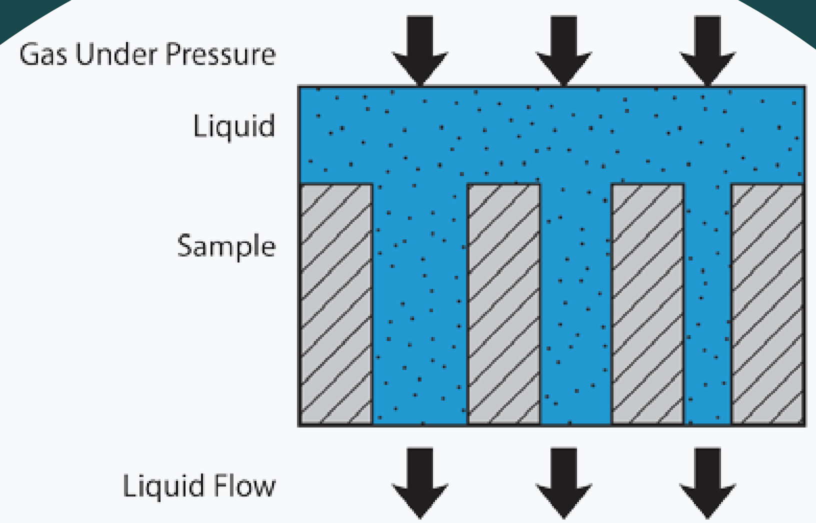
$$D = 4\,\gamma \cos\theta / p$$

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



Basic principle behind analyzing pore structure

Principle of liquid permeability test

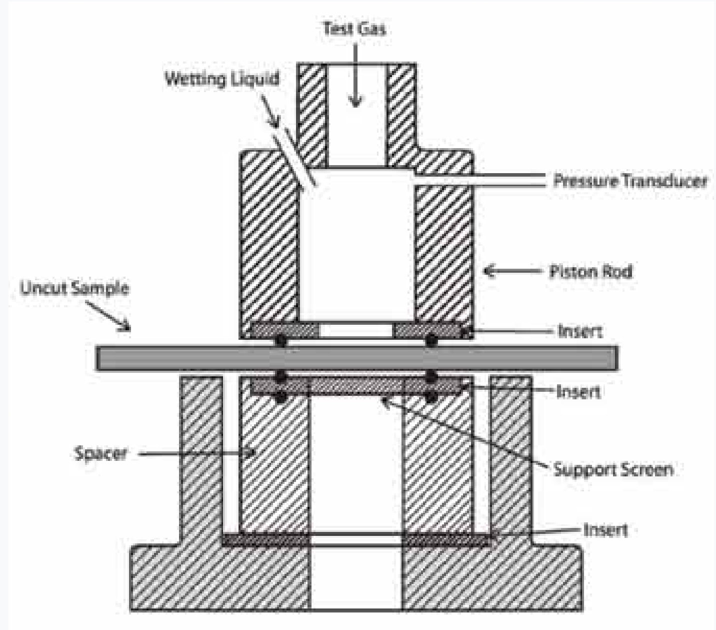


DESCRIPTION

Advanced Capillary Flow Porometer measures the diameter of the most constricted part of a through pore (pore throat, largest pore diameter, Mean flow pore diameter, Pore diameter range, Pore distribution, Gas Permeability.

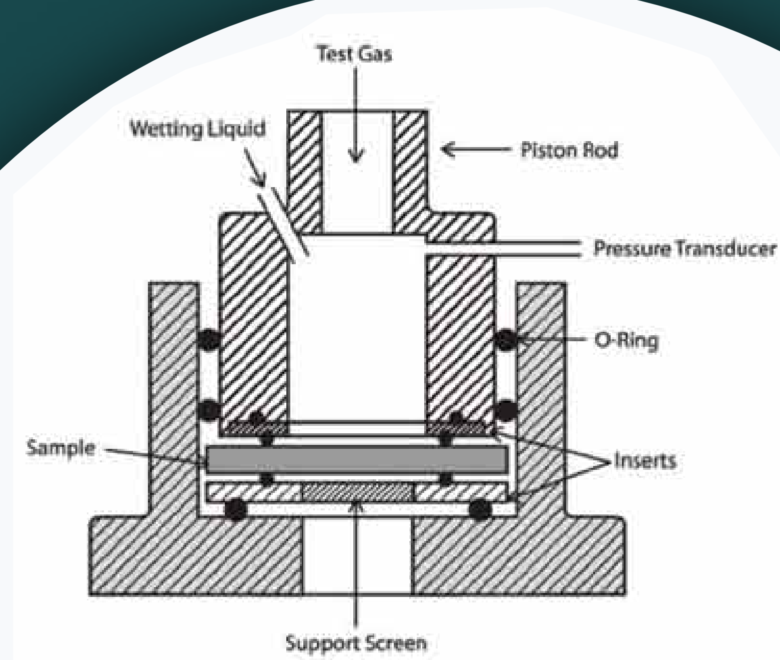
SAMPLE CHARACTERSTICS

- Permeability Range (in darcies) 10^{-3}-50
- Pore Sizes from: 0.3-200 μm
- 200LPM Flow
- Max Pressure: 20 PSI
- Through-pores only
- Pressure sensing accuracy: 0.1 of Full Scale
- Pressure Resolution: 1 in 60,000
- Flow Sensor Type: Thermal
- Flow Sensor Setting Time: Approx. 6 Seconds
- Power Supply: 1100VAC, 50/60Hz (Others Available)



Sample Chamber

Sample Chamber with Spacer



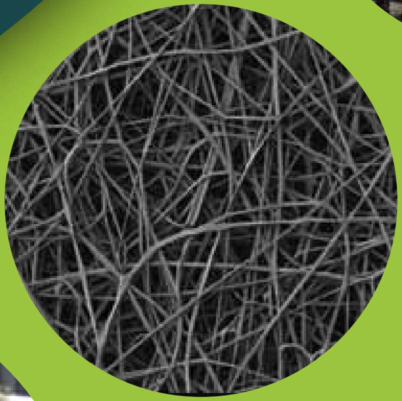
PORE STRUCTURE CHARACTERSTICS

- Gas Permeability
- Pressure Hold Test
- Through Pore Size Distribution
- Mean Flow Pore Diameter
- Bubble Point (Maximum Through Pore Diameter)
- Fully automated and very advanced, No need to cut the sample

APPLICATIONS

- Electrospun Materials
- Battery/Fuel Cells Industry
- Automotive Industry
- Ceramic Industry
- Chemical Industry
- Filtration Industry
- Geotextiles/Textiles Industry
- Nonwovens Industry
- Paper Industry
- Pharmaceutical/Medical Industry
- Powder Metallurgy Industry
- And many more







FEATURES

- Non-destructive
- Real time graphic display
- Fully automated & computer controlled
- Testing of small samples as well as complete parts
- Tests in QC, research, or any number of user defined modes
- Many sample geometrics (Example: sheets, rods, tubes, hollow fibers, cartridges & powder, etc.)
- Use of many non-wetting liquid (Example: Water, Alcohol, Silwick Solution & Galwick Solution)
- Windows based software for all control, measurement, data collection, data reduction & report preparation

UNIQUE FEATURES

- Samples tested under compression.
- Automated Liquid Dispensing Capability
- Considerable reduction in test duration
- Sample not disturbed during wetting
- Tested area exactly the same
- Results are more accurate and reproducible
- Inserts with different opening sizes allow different size samples to be tested
- The sample chamber prevents sideways leak through thick samples because of circumference o-rings

The most advanced, accurate, easy to use and reproducible Porometers in the world.

Celebrating

35

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