



Porous Material Inc. (USA)

In-Plane Porometer



Description :

The sample chamber of the In-Plane Porometer is such that gas is allowed to displace liquid in pores to move radially from the center to the periphery of a sheet shaped sample. Suitable sample configurations give in-plane pore structures of multi-layered materials.

Principles of operation :

A wetting liquid is allowed to spontaneously fill the pores in the sample and a non-reacting gas is allowed to displace liquid from the pores in the radial direction. The gas pressure and flow rates through wet and dry samples are accurately measured. The gas pressure required to remove liquid from pores and cause gas flow is given by:

$$D = 4 g \cos q / p$$

D = pore diameter

g = surface tension of liquid

q = contact angle of the liquid

p = differential gas pressure.

Applications / Features :

Pore structure of a sheet like materials in its plane (x-y plane) determines the radial flow of fluids in the material and the barrier properties of such pores.

The relative permeation rates in the x-y plane and in the thickness direction (z-direction) determine suitability of the material for many applications.

- ✚ Control of ink flow for high quality prints
- ✚ Paper quality
- ✚ Textiles
- ✚ Diapers
- ✚ Biotech products
- ✚ Pharmaceutical products
- ✚ Household products

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, compressed air or nonflammable, non-corrosive gas
Pressure Transducer Range	0 - 500 PSI
Resolution	1 in 20,000
Accuracy	0.15% of reading
Mass Flow Transducer Range	10 cc/minute - 500 L/minute
Power Requirements	110/220 VAC, 50/60 Hz
Dimensions	30" H x 19" W x 18.5" D
Weight	100 lbs

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