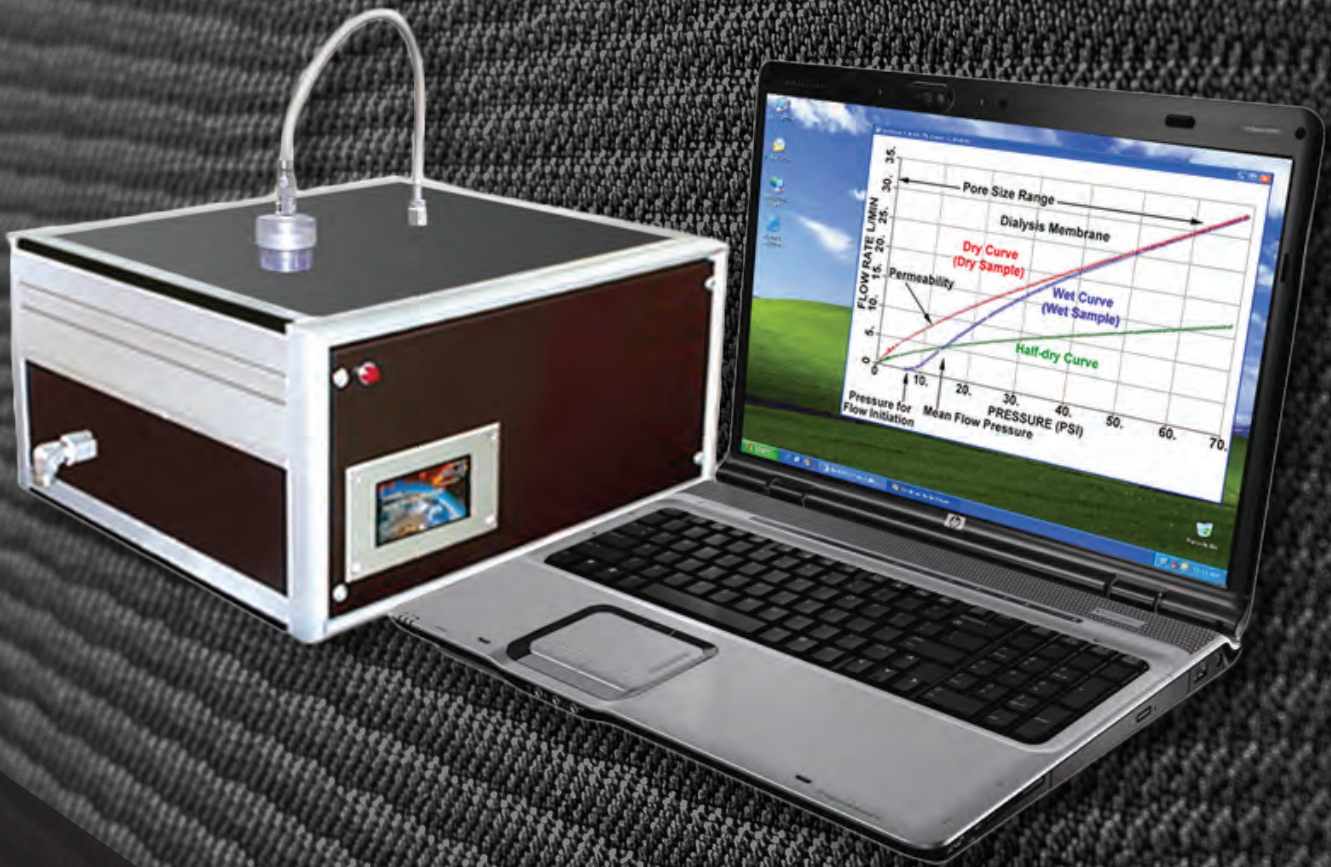


# THE PMI SIMPLE POROMETER



## 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,  $\gamma$  is the surface tension of liquid,  $\theta$  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.

## Application

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)
- Mean flow pore diameter (50% of flow is through pores smaller than the mean flow pore)
- Bubble Point (the largest through pore throat diameter)
- 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 (700kPa instrument versions)

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

Maximum Pore Size Detectable: 80  $\mu\text{m}$

Minimum Pore Size Detectable: Varies with intrusion liquid (see fig. 5)

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

Sample Sizes:

Standard: 0.1 inch diameter (up to 1.5" thick)

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

Pore Size Range: 80  $\mu\text{m}$  to 0.06  $\mu\text{m}$

\* *Other specifications for this machine are available. Specifications are subject to change without notice.*

## 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 maintenance
- Real-time graphical display
- Windows-based software for all control, measurement, data collection, data reduction, and report preparation

## Sales & Services

Our sales team is dedicated to helping our customers find which machine is right for their situation. We also offer custom machines for customers with unique needs. To find out what we can do for you, contact us.

We are committed to customer support including specific service products, short response times & customer specific solutions. To quickly & flexibly meet our customer's requirement, we offer a comprehensive range of services.



*Customize your machine today!*



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Phone: 607-257-5544 Fax: 607-257-5639

Email: [info@pmiapp.com](mailto:info@pmiapp.com) [www.pmiapp.com](http://www.pmiapp.com)

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