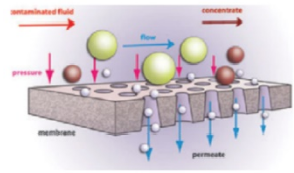
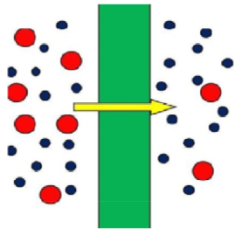
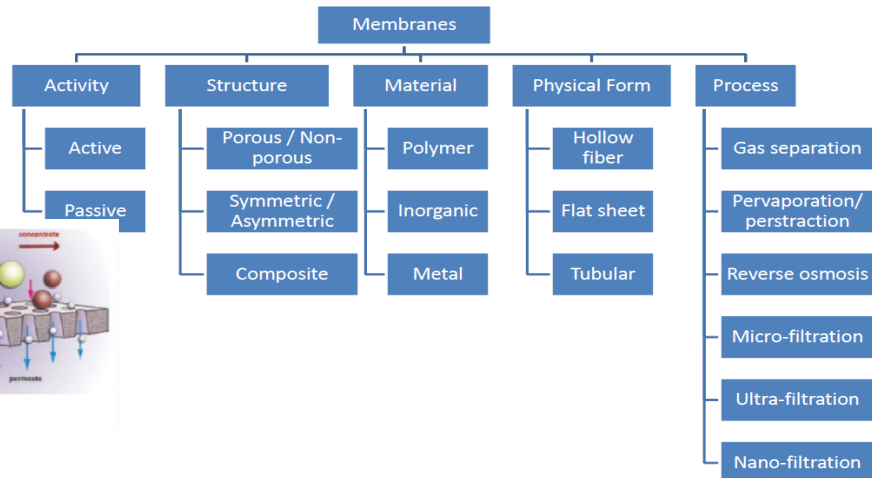


Membrane

- Membrane is a thin barrier, which permits selective mass transport
- Permeation rate and transport mechanism depends on
- Magnitude of driving force (pressure, temperature, current)
- Size and shape of permeating species
- Nature of permeant / membrane material

Membrane Classification



Industrial Aspects of Membranes

On the basis of product, the membrane industry is categorized into

- Reverse Osmosis Membranes (RO)
- Ultrafiltration Membranes (UF)
- Microfiltration Membranes (MF)
- Nano-Filtration Membranes (NF)

On the basis of the end users/applications, membranes can be categorized including

- Water Treatment
- Food and Beverage
- Pharmaceutical
- Industrial and Manufacturing

Porous Material Inc.

We at PMI Analytical Testing Services, are committed to helping you obtain the pore structure information you need. Because there are multiple techniques and instruments, it is critical at the onset to identify the appropriate method of measurement. We begin by discussing your application with you, understanding your needs, and providing you the solution that meets your needs. While PMI provides you with a detailed report, our application engineers are always available to discuss and help interpret your results.

PMI's Analytical Testing Services Division can accommodate a wide variety of samples, materials, and shapes. Sample size and consistency requirements vary with the test and material. For a large number of samples, special test conditions, or individual assistance, please contact PMI. We can analyze your samples and return your results to you (hard copy, on a disk, email, fax, or USPS) in as little as 1-2 business days.

Following are the types of Tests in our premises:

- Capillary Flow Porometry
- Liquid Liquid Porometry
- Water Intrusion Porosimeter

PMI testing services include measurement for:

- Surface area
- Water entry pressure
- Density
- Pore size
- Pore size distribution
- Bubble point

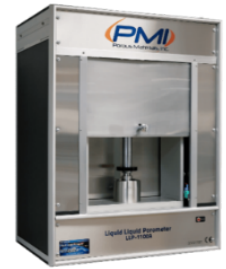


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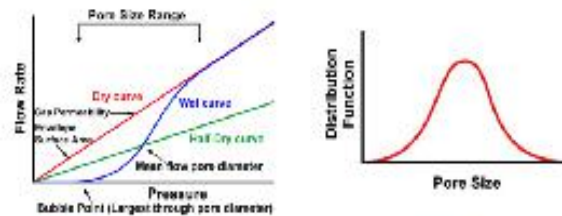
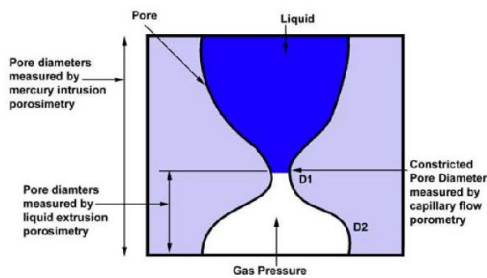
PMI provides a wide range of testing facility targeted at both academia and industries for analysis of **Membrane industry (Hollow Fiber and Flat sheet)**

All these mentioned above can be tested using **Capillary Flow Porometry, Liquid Liquid Porometry, Water Intrusion Porosimetry.**

In this method, the pores of the sample are filled with a wetting liquid, the liquid is emptied by a pressurized gas permitting gas to flow through the empty pores. The differential pressure required to empty a pore of diameter. The largest pore is emptied at the lowest pressure and initiates gas flow. With increasing pressure smaller pores are emptied and gas flow increases. The differential pressures and gas flow rates through dry and wet samples are measured. In the dry sample, the flow rate increases with increase in pressure. ‘



In case of the wet sample, initially there is no flow because all the pores are filled with the liquid. At a certain pressure the gas empties the largest pore and gas flow starts through the wet sample. With further increase in pressure smaller pores are emptied and the flow rate increases until all the pores are empty and the flow rate through the wet sample is the same as that through the dry sample. The half-dry curve in this figure is computed from the dry curve to yield fifty-percent of flow through dry sample at the same pressure. The dry and wet curves yield the bubble point, the mean flow pore diameter, flow distribution and pore fraction distribution of through pores. The dry curve yields gas permeability and envelope (through pore) surface area. Liquid flow rate gives liquid permeability.

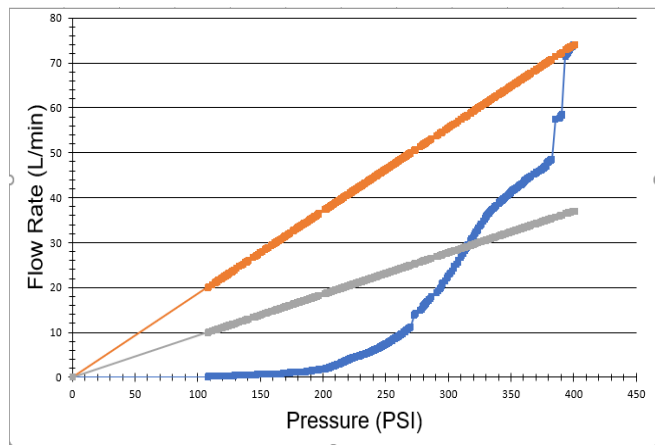


(a) Pore diameters, permeability & through pore surface area (b) Pore distribution

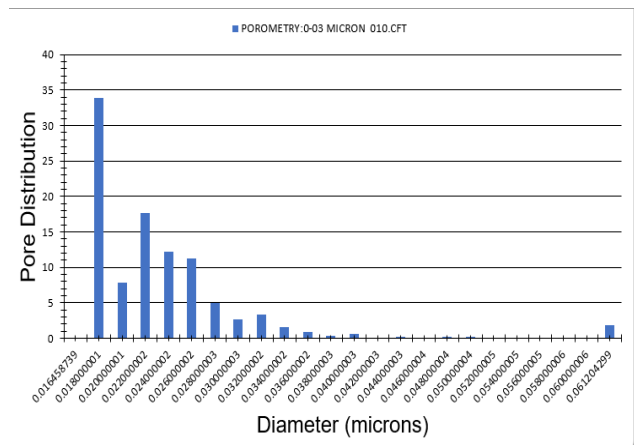
Figure 5. Through pore characteristics measurable by capillary flow porometry.

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ATTACHED BELOW IS THE REPORT TESTED PMI MACHINES



Plot 1 Flow Vs Pressure



Plot 2: Pore Size distribution



If you have any requirement then you can contact us on info@pmiapp.com , krishna@pmiapp.com or phone number +001 6072802357, or visit our website www.pmiapp.com

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