

Porometry

Porometer, Porolux 500



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Introduction

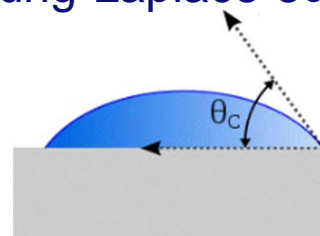
The porometry allows determination of the pore size and pore size distribution of pores that are actively contribution to the filtration process. The technique gives quantitative information on the membrane morphology.



Principle

Capillary flow porometry (CFP) uses the displacement of a wetting liquid inside a porous structure by means of an inert gas flow. The pore size can be calculated according to the applied pressure with the Young-Laplace equation:

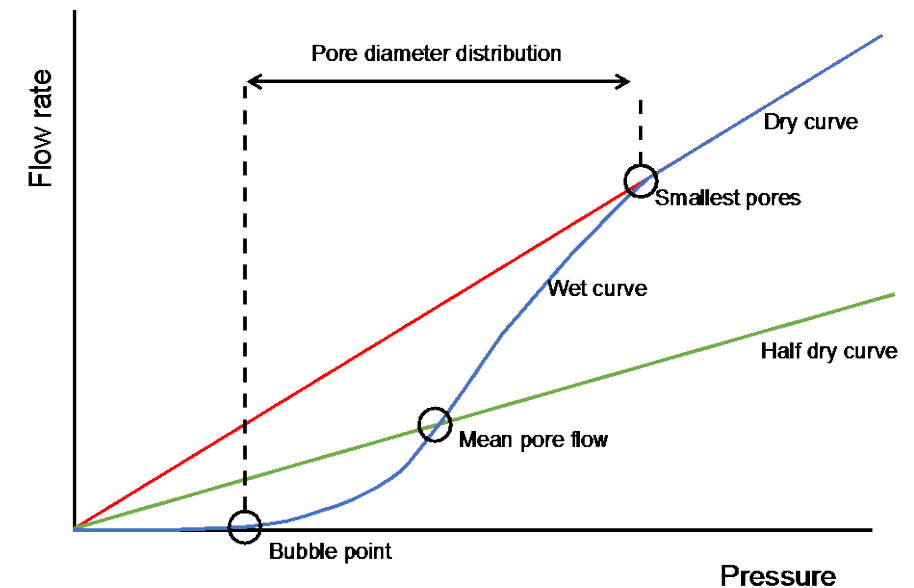
$$r_p = \frac{2 * \gamma * \cos(\theta_c)}{\Delta P}$$



Pores open as pressure increases starting with the biggest pores. Once the liquid is out of the pores, the dried membrane is measured to ensure no morphology change.

Applications

- Microfiltration/Ultrafiltration membrane characterization
- Membrane permeability
- Material defects assessment



The results of porometry measurement.

Conditions determination with:

- PES (Polyethersulfone) membrane disk (25 mm)
- Perfluoroether (Porefil®) as wetting liquid

Equipment characteristics

Max. pressure	Min. pore	Max. pore	Max. flow
35 bar/500 psi	13 nm	500 μm	200 L/min