Bubble point pressure is the differential pressure required for a liquid to flow through a dry filter membrane.

The differential pressure is either a positive pressure on the liquid layer on top of the membrane or a vacuum applied below the membrane or a combination of the two. The bubble point pressure is determined by the combination of the surface tension of the liquid and the pore size of the membrane. If the bubble point pressure cannot be attained with a certain combination of liquid, filter membrane and vacuum, increasing the pore size or starting with a solvent having a lower surface tension will tend to overcome the Bubble Point Pressure.

Once the Bubble Point Pressure is overcome *(i.e. liquid starts flowing through the Membrane)* the Flow can be continued even if the starting Solvent is replaced with one having a higher Surface Tension.

Example: A certain vacuum cannot start a flow of an aqueous solution through a 0.45 micron pore membrane. Pour off the aqueous solution from the top of the membrane and replace it with a liquid having a lower surface tension such as methanol. Start the flow of the methanol through the membrane. Pour off any Methanol from on top of the membrane (do not allow the membrane to dry) and replace it with the aqueous solution you want to filter. The filtration process will continue since the bubble point pressure was overcome earlier.

Caution: Make sure that adding the aqueous solution to the methanol wetted membrane does not cause a precipitate to form. To prevent precipitate formation, first filter some pure water through the methanol wetted membrane and then continue with solute containing aqueous solution.

The whole process is much easier than it sounds.

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