Pervaporation & Vapor Permeation is an energy efficient combination of membrane permeation and evaporation. It's considered an attractive alternative to other separation methods like Extractive Distillation, Molecular Sieve for a variety of processes. Pervaporation is used for the dehydration of organic solvents and the removal of organics from aqueous streams.

Pervaporation involves the separation of two or more components across a membrane by differing rates of diffusion through a thin layer and an evaporative phase change comparable to a simple flash step. A concentrate and vapor pressure gradient is used to allow one component to preferentially permeate across the membrane. A vacuum applied to the permeate side is coupled with the immediate condensation of the permeated vapors. Pervaporation is typically suited to separating a minor component of a liquid mixture, thus high selectivity through the membrane is essential. Pervaporation can be used for breaking azeotropes, dehydration of solvents and other volatile organics, organic/organic separations such as ethanol or methanol removal, and wastewater purification.

**Process Advantages**

* Low energy consumption, low running cost
* No entrainer required, no contamination
* Less waste effluent
* Easy maintenance
* Functions independent of vapor/liquid equilibrium

**PV/VP technology can be used for the following products**

- Methanol
- Ethanol
- Propanol & IPA
- Butanol & IBA
- Pentanol
- Cyclohexanol
- Benzyl alcohol
- Benzene
- Toluene
- Phenol
- Acetone
- Butanone
- Methyl isobutyl ketone (MIBK)
- Triethylamine
- Pyridine
- Aniline
- Chlorinated hydrocarbons
- Dichloro methane
- Perchloroethylene
- Methyl tert-butyl ether (MTBE)
- Ethyl tert-butyl ether (ETBE)
- Di-isopropyl ether (DIEP)
- Tetrahydro furan (THF)
- Dioxane
- Methyl acetate
- Ethyl acetate
- Butyl acetate
- Acetic acid