

Datasheet: PDMS Membranes

PDMS (Poly Di Methyl Siloxane) membranes have hydrophobic/organophilic characteristics, in which the organic constituent of the feed passes preferentially through the membrane.

Membrane elements:

Dimensions:	1-channel tube 250 x 10 x 7 mm, effective area 0,005 m ² 1-channel tube 500 x 10 x 7 mm, effective area 0,01 m ² 4-tube assembly 1200 x 25 mm, effective area 0,1 m ² 4-tube assembly 600 x 25 mm, effective area 0,05 m ²
Substrate material:	α -Al ₂ O ₃
Top layer:	PDMS
Coating position:	Inside of the tube

Limits of operation

Temperature:	70 °C (short-term 80 °C)
Pressure:	max. 10 bar
pH:	1-12
pre-filtration:	10 μ cartridge filter

Storage and cleaning

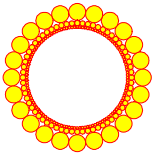
Storage before use:	Out of direct sunlight Room temperature < 70% RH
Storage after use (short) :	In a solution of water and 10-15% IPA or water with 2500 ppm Sodium Meta Bisulfite
Storage after use (long):	In a solution of water with 0.7% Benzalkonium
Cleaning:	The element can be cleaned by flushing with water to which a non-ionic detergent (10 ppm KOH) is added. Also enzymatic solutions dependent on the feed composition may be used. In case of food & additives processing contact us for alternatives.

Sterilization options

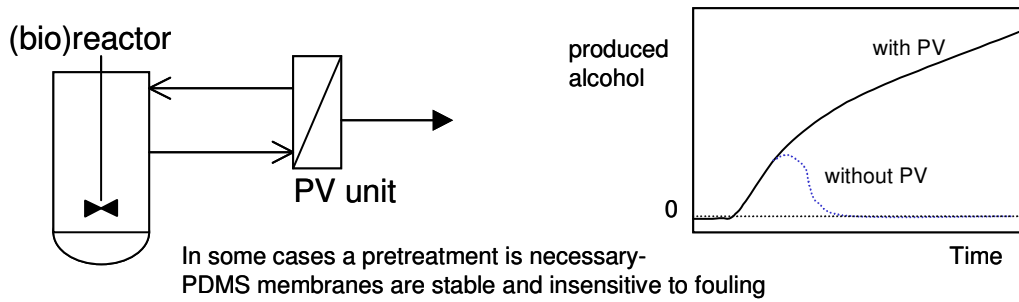
Steam:	106-108°C
Flushing:	With ethylene oxide or 100% ethanol

Possible applications with hydrophobic/organophilic membranes

- Recovery or extraction of organics from natural feed like fruit juices, wine, beer, coco-nut oil, essential oils (carvon, limonene) and in combination with fermentation.
- recovery of organics in biotech or biotech related food applications such as in natural feed like fruit juices, wine, beer, coco-nut oil, essential oils (carvon, limonene) and in combination with fermentation.
- Removal of ethyl alcohol (and other alcohols) from wine and beer
- Upgrading reverse osmosis permeate in juice production.
- Combination with bioreactors in production of alcohols (ethanol, IPA, butanol), ABE (acetone, butanol, ethanol), aldehydes, flavor production as well as acid production.
- Removal of VOC



Typical example of PV process in combination with bioreactors:



Principle of membrane reactor for continuous recovery of product (alcohols, aromas)

The system with PV continues to produce alcohol while other systems stop when inhibiting amounts of alcohol (or other inhibitor) have been reached.