

Datasheet: POMS Membranes

POMS (polyoctylmethyl siloxane) membranes have hydrophobic/organophilic characteristics, in which the organic constituent of the feed passes preferentially through the membrane.

Membranes:

Dimensions: 1-channel tube 250 x 10 x 7 mm, effective area 0,005 m²
 1-channel tube 500 x 10 x 7 mm, effective area 0,010 m²

Substrate material: α -Al₂O₃
 Top layer: POMS
 Coating position: Inside of the tube

Limits of operation

Temperature: 70 °C (short-term 80 °C)
 Pressure: max. 10 bar
 pH: 3-10
 pre-filtration: 10 μ cartridge filter

Handling, storage and cleaning

Handling: Wear clean gloves in order to prevent contamination with fungi.
Warning: The membranes are brittle and cannot withstand shock, excessive vibration nor mechanical bending forces.
 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 metabisulfite
 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

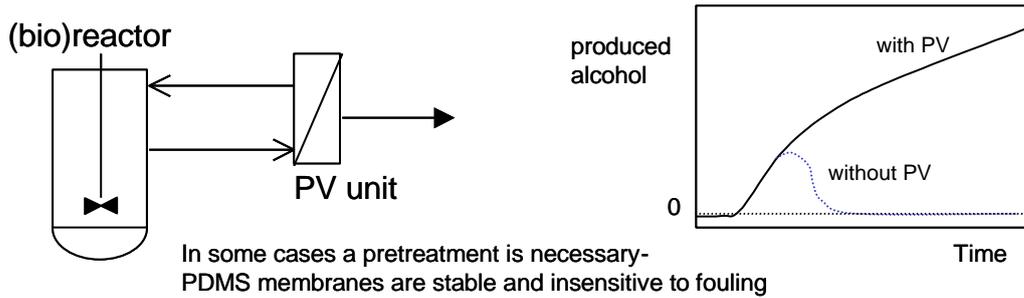
Steam: 106-108 °C
 Flushing: With ethylene oxide or 100% ethanol

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 VOCs.
- In general POMS membranes are more open than PDMS membranes. However, in some solutions, especially >>C2 and low concentrations POMS performs better than PDMS. This especially holds for phenolic types of molecules.

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.*