



Datasheet: Titania Membranes

Titania membranes are mainly selective by pore size. The membranes have hydrophilic characteristics, meaning that the water content 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:	Titania
Pore size:	Micro: ~1 nm
	Meso: 3-5nm, can be set up to 15nm.
Coating position:	Inside of the tube

Limits of operation

Temperature:	200 °C
Pressure:	max. 10 bar
pH:	1-9

Handling, storage and cleaning

Handling

Always wear clean gloves when handling the membranes in order to prevent contamination with fungi. **Warning:** The membranes are brittle and cannot withstand shock, excessive vibration nor mechanical bending forces.

Storage

The membranes can be stored in a dry place under ambient conditions. To prevent the risk of fungi growth on the ceramic element the relative humidity should not exceed 60%.

Cleaning

At the end of the standard dehydration process flush the element with clean solvent or demineralized water (max. 50 °C). CIP the element with appropriate means. This is either with its own solvent or typically 0,5% to 1% enzymatic neutral non-ionic detergent. In some cases special CIP procedures might be applicable. Sterilize with Formaldehyde (1%) or Sodium Azide (<0.01%) or equivalent. Please consult Pervatech for more information.

Possible applications with hydrophilic membranes

- Removal of small molecules from larger organic molecule solvents like C10+, fuels, etheric oils, etc.
- Solvent recovery
- In situ removal of small molecules like methanol, ammonia, formaldehyde, CO – CO₂ in organic syntheses in pharmaceutical production