



PERVATECH[®]

Datasheet

TUBULAR ZEOLITE NaA MEMBRANE

Tubular zeolite type NaA membranes have hydrophilic characteristics, which means that the water content of the feed passes preferentially through the membrane. The recommended application of these membranes is dewatering via vapor permeation, a separation technique related to pervaporation with the feed stream in vapor phase.

MEMBRANE ELEMENT

Geometry	Tubular
Dimensions	1-channel tube 250 x 10 x 7 mm, effective membrane surface area 0.005 m ² 4-channel tube 1200 x 20.5 mm, inner diameter for each channel 6.1 mm, effective membrane surface area 0.089 m ²
Substrate material	α -Al ₂ O ₃
Top layer	Zeolite NaA
Coating position	Inside of the tube

OPERATIONAL WINDOW

Temperature	Maximum 150 °C
pH	6.5-7.3
Water concentration in feed	< 20 wt%
Feed pressure	< 10 bar
Temperature change	< 10 K/min
Vapor velocity in channels	< 10 m/s
Acid content	< 30 mg/liter
Base content	none
Dissolved solids or salts	none
Aldehyde content	< 50 mg/liter
Fusel oil content	< 10 mg/liter
CO ₂ content	< 100 mg/liter

HANDLING, CLEANING AND STORAGE

Please note: the membranes are brittle and cannot withstand shock, excessive vibration nor mechanical bending forces.

Handling

- Wear clean gloves to prevent contamination with fungi.

Cleaning

At the end of the standard dewatering process:

- Flush the element with clean solvent. In some cases, special CIP procedures might be applicable.

Please consult Pervatech for more information.

Storage

- Store the membranes in a dry place under ambient conditions, at a temperature of 10 °C or higher.
- Make sure that the relative humidity does not exceed 60 %, to prevent the risk of fungi growth on the ceramic element.

PERFORMANCE

The initial overall average permeate flux is 4.5 kg/m²·h and the water concentration of the permeate is > 97 wt% based on pervaporation tests at the following operating conditions:

- Feed composition: 10 wt% water, 90 wt% ethanol
- Feed temperature: 100 °C
- Feed flow rate: 600 liter/h
- Permeate pressure: 20 mbar

The real performance depends on the operation conditions and feed composition.

Heliumstraat 11
7463 PL Rijssen
The Netherlands
T +31 548 530 360
info@pervatech.nl
pervatech.com