

fumasep® FKM

General

Membrane type: Heterogeneous cation-exchange membrane – PP-reinforced – thickness 500 µm with high mechanical stability.

Application: Electrocoating, electroplating, electrodeionisation, electrodialysis for demineralisation, desalination and others, recommended temperature range below 30 °.

Membranes are identified by membrane type and identification number (Lot No). Please refer to this type and identification number in case of queries.

Delivery

The membrane is the light-brown foil, delivered in dry form.

Handling and Storage

Keep membrane package closed / sealed when unused. Store, handle and process the membrane in a clean and dust-free area. Use only new and sharp knives or blades, when cutting the membrane. Always wear protective gloves when handling the membrane. Handle with care, be sure not to puncture, crease or scratch the membrane, otherwise leaks will occur. All surfaces which may get into contact with the membrane during inspection, storage, pretreatment and mounting must be free of sharp edges or angles.

Dry form: Storage for long time scale (> 12 month) may be done in dry state (sealed container). Wet form: Storage for short and medium time scale (hours up to several weeks) may be done in unsealed containers in 0.5 – 1.5 wt% NaCl solution or comparable neutral pH electrolytes. For storage over a longer time period a sealed container is recommended using afore said electrolyte with additional biozide (e.g. sodium sulfite Na₂SO₃ in concentration 1 – 3 wt%) to avoid biological fouling.

Pretreatment

The membrane is supplied in a dry state, however some remaining water and / or solvents can be present in the product, which can be easily removed by soaking in DI water. If additional cleaning is required rinse the membrane in either the application solution or deionized water according to the application requirement. Assembling is recommended in wet form. Pretreatment before assembling in wet form: Place the membrane sample between stabilizing meshes / spacers (in order to avoid curling) in NaCl solution - e.g. 0.5 M NaCl solution at T = 25 °C for 72 hrs exchanging several times the solution. Do not let the membrane dry out since micro-cracks may likely occur during shrinkage. Membranes will expand and contract based on water / electrolyte content.

If you have any concerns about storage, chemical stability, and pretreatment please feel free to contact us for further information.

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Technical Data Sheet - fumasep® FKM

Physical and chemical data of fumasep® FKM

fumasep®	unit	FKM
membrane type		cation exchange membrane
appearance ^{a)}		light brown
backing foil		none
reinforcement		PP (polypropylene fabrics)
counter ion		sodium (Na ⁺)
delivery form		dry
thickness (dry)	µm	450 – 590
weight per unit area (dry)	g m ⁻²	500 – 600
area resistance in Cl ⁻ form ^{b)}	Ω cm ²	< 20
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C ^{c)}	%	> 95
dimensional swelling (x / y direction) in H ₂ O at T = 25 °C ^{d)}	%	< 2 / < 4
Young's modulus at 23 °C / 50 % r.h. ^{e)}	MPa	
tensile strength at 23 °C / 50 % r.h. ^{e)}	MPa	
elongation at break at 23 °C / 50 % r.h. ^{e)}	%	
proton transfer rate ^{f)}	nmol min ⁻¹ cm ⁻²	< 100
burst test in water at T = 25 °C	bar	> 3
pH stability range at 25 °C	pH	1 – 9
operational temperature range	°C	15 - 30
Version ^{g)}	2.2	Valid from March 18 th 2021

a) the color of the product may vary slightly.

b) in Na⁺ form in 0.5 M NaCl @ T = 25 °C, measured in standard measuring cell (through-plane)

c) determined from membrane potential measurement in a concentration cell

d) membrane as received versus stored in water for 24 hrs.

e) determined by stress-strain measurement at T = 25 °C and 50 % r.h., DIN EN 527-1 (without pretreatment).

f) determined from pH potential measurement in a concentration cell 0.5 M NaOH / 0.5 M NaCl @ T = 25 °C.

g) Changes without prior notices may apply.

Note: The product is not certified for drinking water applications. The data are not measured directly on the item supplied. The data sheet does not release the customer of the necessity of a goods inwards control procedure. All information included in this data sheet is based on tests and data believed to be reliable. The data do not imply any warranty or performance guarantee. It is the user's responsibility to examine performance, suitability and durability of the product for the intended purpose. FUMATECH BWT GmbH does not assume any liability for patent infringement resulting from the use of this product. fumasep® is a trademark of company FUMATECH BWT GmbH.

Hereby, it is certified that all results of the measured item comply with the margins of the internal specification defined in the technical datasheet. All measurements and data recording are conducted in accordance with standardized procedures following the ISO 9001 certification.