

# fumasep® FKM

## General

*Membrane type:* Heterogeneous cation-exchange membrane with high selectivity and very high mechanical stability.

*Application:* Electrocoating, electroplating, electrodeionisation, electrodialysis for demineralisation, desalination and others.

*Durability range:* pH = 1 – 9 at T = 25 °C.

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 beige foil, delivered as roll or as a sheet. The membrane is delivered in dry form.

## Handling and Storage

Keep membrane package closed / sealed when unused. Unpack membrane only for direct use and process it immediately after opening. 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 over long time period (6-12 months) may be done in dry state (sealed container).  
Wet form: Storage for short and medium time period (up to several days) 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 sodium sulfite (Na<sub>2</sub>SO<sub>3</sub>) in concentration 1 – 3 wt% to avoid biological fouling.

## Pretreatment

Depending on application and cell design, assembling is possible in dry (without pretreatment) or wet form. Pretreatment before assembling: Soak the membrane in NaCl solution - e.g. 0.5 M NaCl solution at T = 25-85 °C for 24-72 hrs exchanging several times the solution. Do not let the membrane dry out since micro-cracks may likely occur during shrinkage.

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

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### FUMATECH BWT GmbH

Carl-Benz-Straße 4

74321 Bietigheim-Bissingen

Phone: +49-(0)-7142-3737-900

Fax: +49-(0)-7142-3737-999

Email: [sales@fumatech.com](mailto:sales@fumatech.com)

**Physical and chemical data of fumasep® FKM**

fumasep®	unit	FKM
membrane type		Cation exchange membrane
appearance		Dark yellow to brown
backing foil		none
reinforcement		PP (polypropylene fabrics)
counter ion		Sodium (Na <sup>+</sup> )
delivery form		dry
thickness (dry)	µm	450-600
weight per unit area	g m <sup>-2</sup>	500-700
ion exchange capacity (in Cl <sup>-</sup> form)	meq g <sup>-1</sup>	1,4 – 2
area resistance in Cl <sup>-</sup> form <sup>a)</sup>	Ω cm <sup>2</sup>	12 – 25
selectivity 0.1 / 0.5 M KCl at T = 25 °C <sup>b)</sup>	%	> 88
uptake in H <sub>2</sub> O at T = 25 °C <sup>c)</sup>	wt %	< 10
dimensional swelling in H <sub>2</sub> O at T = 25 °C <sup>d)</sup>	%	< 10
proton transfer rate at the beginning-of-life <sup>f)</sup>	nmol min <sup>-1</sup> cm <sup>-2</sup>	< 100
bubble point test in water at T = 25 °C	bar	> 3
Version <sup>g)</sup>	2.1	Valid from August 20 <sup>th</sup> 2021

a) in Cl<sup>-</sup> form in 0.5 M NaCl @ T = 25 °C, measured in standard measuring cell (through-plane)

b) determined from membrane potential measurement in a concentration cell

c) in Cl<sup>-</sup> form, membrane as received stored in water for 24 hrs, reference membrane dried over P<sub>2</sub>O<sub>5</sub> *in vacuo*

d) in Cl<sup>-</sup> form, membrane as received stored in water for 24 hrs, reference membrane as received

f) determined from pH potential measurement in a concentration cell 0.1 M HCl / 0.1 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.