

# fumasep® FKS-PET-130

## General

*Membrane type:* Cation-exchange membrane – PET-reinforced – thickness 130 µm, with low resistance, high selectivity, very high mechanical stability, and high stability in pH neutral and acidic environment.

*Application:* Demineralisation and desalination applications by electrodialysis, and others.

*Durability range:* pH = 0 – 8 at T = 25 °C, recommended operational temperature range 15 – 40 °C.

Membranes are identified by membrane type and identification number (Lot Number). Please refer to this type and identification number in case of queries.

## Delivery

The membrane is the slightly brown foil, supplied 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. To assure safe handling prevent contact with skin and eyes. Apply sufficient room ventilation and avoid inhalation close to the membrane (use fume hood). 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 Na<sub>2</sub>SO<sub>3</sub> 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. Depending on application and cell design, assembling is possible in dry (without pretreatment) or 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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**Physical and chemical data of fumasep® FKS-PET-130**

fumasep®	unit	FKS-PET-130
membrane type		cation exchange membrane
appearance <sup>a)</sup>		light brown
backing foil		none
reinforcement		PET
counter ion		H <sup>+</sup> form
delivery form		dry
thickness (dry)	µm	120 – 150
weight per unit area (dry)	g m <sup>-2</sup>	120 – 160
area resistance in Na <sup>+</sup> form <sup>b)</sup>	Ω cm <sup>2</sup>	< 4
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C <sup>c)</sup>	%	> 96
dimensional swelling in H <sub>2</sub> O at T = 25 °C <sup>d)</sup>	%	< 2
Young's modulus at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	> 1500
tensile strength at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	> 50
elongation at break at 23 °C / 50 % r.h. <sup>e)</sup>	%	> 15
hydroxyl ion transfer rate <sup>f)</sup>	nmol min <sup>-1</sup> cm <sup>-2</sup>	< 200
burst test in water at T = 25 °C	bar	> 3
pH stability range at 25 °C	pH	0 – 8
operational temperature range	°C	15 - 40
Version <sup>g)</sup>	2.2	Valid from February 26 <sup>th</sup> 2021

a) the color of the product may vary slightly.

b) in Na<sup>+</sup> 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: 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.