

# fumasep<sup>®</sup> F-10150-PF

## General

**Membrane type:** Perfluorinated cation-exchange membrane – PFA-reinforced - thickness 140 - 150 µm, with low resistance, high mechanical stability, high selectivity and high chemical / oxidative stability, and resistant to chlorine.

**Application:** Electrochemical processes requiring cation exchange membranes with high oxidative stability and highly resistant to chlorine - e.g. for electrolysis, for electrode protection in electro dialysis, and others.

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 colourless, transparent foil, delivered on a backing layer (colourless rigid PET foil). Peel off carefully the membrane from the backing layer.

## Handling

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 in contact with the membrane during handling, inspection, storage and mounting must be smooth and free of sharp projections. Membranes will expand and contract based on water / electrolyte content.

## Pretreatment

The membrane is delivered in H-form and dry form (non-activated). In many applications no further pretreatment is required. However, for optimum performance and lowest resistance it is recommended to pretreat the membrane according to the following prescription: Put the membrane sample in an aqueous 10 wt% HNO<sub>3</sub> solution or in 5 vol % H<sub>2</sub>SO<sub>4</sub> solution at minimum T = 80 °C for at least 12 h. After rinsing with demineralized water (pH ~ 7) the membrane is ready for use (activated). Membranes will expand and contract based on moisture content.

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

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## Technical Data Sheet - fumasep® F-10150-PF

### Physical and chemical data

fumasep®		F-10150-PF
membrane type		cation exchange membrane
appearance / colour		transparent, colourless
backing foil		PET foil
reinforcement		PFA
counter ion		H-form
delivery form		dry (non-activated)
thickness (dry, as received)	µm	140 – 150
weight per unit area	mg cm <sup>-2</sup>	25 – 30
IEC (ion exchange capacity)	meq g <sup>-1</sup>	0.7 – 0.9
area resistance in NaCl at T = 25 °C (Na <sup>+</sup> form) <sup>a)</sup>	Ω cm <sup>2</sup>	1.8 – 2.9
conductivity in NaCl at T = 25 °C (Na <sup>+</sup> form) <sup>a)</sup>	mS cm <sup>-1</sup>	6 – 9
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C <sup>b)</sup>	%	94 – 98
uptake in H <sub>2</sub> O at T = 25 °C in H-form <sup>c)</sup>	wt %	15 – 25
dimensional swelling in H <sub>2</sub> O at T = 25 °C in H-form <sup>d)</sup>	%	8 – 12
hydroxyl transfer rate <sup>e)</sup>	µmol min <sup>-1</sup> cm <sup>-2</sup>	250 – 400
Young's modulus at 23 °C / 50 % r.h. <sup>f)</sup>	MPa	400 – 700
yield strength at 23 °C / 50 % r.h. <sup>f)</sup>	MPa	-
tensile strength at 23 °C / 50 % r.h. <sup>f)</sup>	MPa	15 – 20
elongation at break at 23 °C / 50 % r.h. <sup>f)</sup>	%	20 – 50
bubble point test in water at T = 25 °C	bar	> 3
pH stability range at T = 90 °C	pH	0 - 14

a) measured in two-electrode cell (through-plane), sample activated in 10 % H<sub>2</sub>SO<sub>4</sub>, T = 100 °C, 30 min before measurement.

b) determined from membrane potential measurement in a concentration cell, sample activated in 10 % H<sub>2</sub>SO<sub>4</sub>, T = 100 °C, 30 min before measurement.

c) reference membrane dried over P<sub>2</sub>O<sub>5</sub>, sample activated in 10 % H<sub>2</sub>SO<sub>4</sub>, T = 100 °C, 30 min before measurement.

d) reference membrane stored in solution for 24 hrs, sample activated in 10 % H<sub>2</sub>SO<sub>4</sub>, T = 100 °C, 30 min before measurement.

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

f) determined by stress-strain measurement at T = 25°C and 50 % r.h., according to DIN EN 527-1 measurement.

Please note: The data are not measured directly on the item supplied.

**Contact us for any questions or sales information:**

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