

fumasep[®] F-10120-PK

General

Membrane type: Perfluorinated cation-exchange membrane – PK-reinforced - thickness 120 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 electrode protection.

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). For optimum performance and lowest resistance it is necessary to pretreat the membrane according to the following prescription: Put the membrane sample in an aqueous 10 wt% HNO₃ solution or in 5 vol % H₂SO₄ 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 pretreatment please feel free to contact us for further information.

Technical Data Sheet - fumasep® F-10120-PK

Physical and chemical data

fumasep®		F-10120-PK
membrane type		cation exchange membrane
appearance / colour		transparent, colourless
backing foil		PET foil
reinforcement		PK
counter ion		H-form
delivery form		dry (non-activated)
Lot No		M28571505
thickness (dry, as received)	µm	120 – 135
weight per unit area	mg cm ⁻²	25
IEC (ion exchange capacity)	meq g ⁻¹	0.79
area resistance in 0.5 M H ₂ SO ₄ ^{a)}	Ω cm ²	0.33
conductivity in 0.5 M H ₂ SO ₄ ^{a)}	mS cm ⁻¹	54.4
area resistance in 0.5 M H ₂ SO ₄ and 0.4 M VO ₂ SO ₄ ^{a)}	Ω cm ²	0.98
conductivity in 0.5 M H ₂ SO ₄ and 0.4 M VO ₂ SO ₄ ^{a)}	mS cm ⁻¹	18.1
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C ^{b)}	%	95
uptake in 2 M H ₂ SO ₄ at T = 25 °C ^{c)}	wt %	13
dimensional swelling in 2 M H ₂ SO ₄ at T = 25 °C ^{d)}	%	4
uptake in vanadyl sulfate at T =25°C ^{c)}	wt %	10
dimensional swelling in vanadyl sulfate at T =25°C ^{d)}	%	2
Young's modulus at 23 °C / 50 % r.h. ^{e)}	MPa	660 – 830
yield strength at 23 °C / 50 % r.h. ^{e)}	MPa	–
tensile strength at 23 °C / 50 % r.h. ^{e)}	MPa	35 – 36
elongation at break at 23 °C / 50 % r.h. ^{e)}	%	38 – 42
bubble point test in water at T = 25 °C	bar	> 3

a) measured in two-electrode cell (through-plane), sample activated in 10 % H₂SO₄, T = 100 °C, 30 min before measurement.

b) determined from membrane potential measurement in a concentration cell sample activated in 10 % H₂SO₄, T = 100 °C, 30 min before measurement.

c) reference membrane dried over P₂O₅, sample activated in 10 % H₂SO₄, T = 100 °C, 30 min before measurement..

d) reference membrane stored in solution for 24 hrs, sample activated in 10 % H₂SO₄, T = 100 °C, 30 min before measurement.

e) 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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