fumasep® FAB-PK-130

General

Membrane type: Anion-exchange membrane – PK-reinforced – thickness 130 µm, with high proton blocking capability, high selectivity, high mechanical stability, and high stability in acidic and caustic environment.

Application: Electrodialysis and electrodialysis with bipolar membranes.

Stability range: pH = 1 – 14 at T = 25 °C, recommended operational temperature range 15 – 40 °C, not resistant to chlorine (Cl_2).

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 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_2SO_3 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, pretreatment or before proceeding, please feel free to contact us for further information.

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Physical and chemical data of fumasep® FAB-PK-130

fumasep®	unit	FAB-PK-130
membrane type		anion exchange membrane
appearance [a)]		brown
backing foil		none
reinforcement		PK
counter ion		bromide (Br^-)
delivery form		dry
thickness (dry)	µm	110 – 150
weight per unit area (dry)	g m^{-2}	110 – 160
area resistance in Cl^- form [b)]	Ω cm^2	< 8.5
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C [c)]	%	> 93
dimensional swelling in H_2O at T = 25 °C [d)]	%	< 2
Young's modulus at 23 °C / 50 % r.h. [e)]	MPa	> 1000
tensile strength at 23 °C / 50 % r.h. [e)]	MPa	> 50
elongation at break at 23 °C / 50 % r.h. [e)]	%	> 15
proton transfer rate [f)]	nmol min^{-1} cm^{-2}	< 500
burst test in water at T = 25 °C	bar	> 3
pH stability range at 25 °C	pH	1 – 14
operational temperature range	°C	15 - 40
Version [g)]	2.3	Valid from February 26th 2021

a) the color of the product may vary slightly.
b) in Cl^- 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 vs stored in water for 24 hrs at T = 25 °C.
e) determined by stress-strain measurement at T = 25 °C and 50 % r.h., according to DIN EN 527-1 (without pretreatment).
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.

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.

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