fumasep® FKB-PK-130

General

Membrane type: Cation-exchange membrane - PK-reinforced - thickness 130 µm, with low resistance, high selectivity, very high mechanical stability, high stability in pH-acidic and caustic environment, and high OH blocking capability.

Application: Electrodialysis and electrodialysis with bipolar membranes.

Stability range: Stable under caustic conditions (e.g. 4 M KOH) at T = 25 °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 brown foil delivered in dry form.

Handling and Storage

Keep membrane package closed / sealed when unused. Unpack membrane only for direct use and process 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 in contact with the membrane during handling, inspection, storage and mounting must be smooth and free of sharp projections.

Dry form: Storage for short and medium time scale (up to several months) 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 ca. 100 ppm biocide (e.g. NaN_3) to avoid biological fouling.

Pretreatment

The membrane is delivered in H-form and dry form. Depending on application and cell design, assembling is possible in dry (without pretreatment) or wet form. Before assembling in wet form put 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 the solution several times. Do not let the membrane dry out since micro-cracks may likely occur during shrinkage.

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

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

fumasep®		FKB-PK-130
membrane type		cation exchange membrane
appearance / colour [a)]		brown
backing foil		none
reinforcement		PK
counter ion		Na/H form
delivery form		dry
thickness	µm	115 – 150
weight per unit area (dry)	mg cm^{-2}	11 – 16
ion exchange capacity (Na^+ form)	meq g^{-1}	1.0 – 1.28
area resistance in Na^+ form [b)]	Ω cm^2	< 10
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C [c)]	%	> 98,5
hydroxyl (OH^-) transfer rate [d)]	nmol min^{-1} cm^{-2}	< 200
Young's modulus at 23 °C / 50 % r.h. [e)]	MPa	> 1.000
elongation at break at 23 °C / 50 % r.h. [e)]	%	10 – 50
bubble point test in water at T = 25 °C	bar	>3
pH stability range at 25 °C	pH	0 – 14

a) in Na^+ 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 H^+ form, membrane as received stored in water for 24 hrs, reference membrane dried over P_2O_5 *in vacuo*.
d) in H^+ form, membrane as received stored in water for 24 hrs, reference membrane as received.
e) in H^+ form, membrane as received, determined by stress-strain measurement at T = 25°C and 50 % r.h., DIN EN 527-1.

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