

fumasep[®] FKE-50

General

Membrane type: Cation-exchange membrane - non-reinforced - thickness 50 µm, with very low resistance, high selectivity and high stability in pH acidic and basic environment.

Application: Electrodialysis for demineralisation, desalination applications, capacitive deionization 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 thin brown foil, delivered on a backing foil (colourless rigid PET foil). Pull off carefully the membrane (brown) from the backing foil. The membrane is delivered 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. 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 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 biocide 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 form (without pretreatment) or wet form. For optimum performance it is recommended to rinse the membrane in NaCl solution (e.g. 0.5 M NaCl solution at T = 25 °C for 24 hrs) to remove any additive from the membrane. Place the membrane sample between stabilizing meshes / spacers in order to avoid curling. Do not let the membrane dry out since micro-cracks may likely occur during shrinkage.

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

Technical Data Sheet - fumasep^ü FKE-50

Physical and chemical data of fumasep[®] FKE-50

fumasep ^ü		FKE-50
membrane type		cation exchange membrane
appearance / colour		brown, transparent
backing foil		PET foil
reinforcement		none
counter ion		H form
delivery form		dry
thickness (dry)	µm	45 – 55
weight per unit area	mg cm ⁻²	7.5 – 8.5
ion exchange capacity (Na ⁺ form)	mmol g ⁻¹	1.4 – 1.5
area resistance in Na ⁺ form ^{a)}	cm ²	1.5 – 2.3
specific conductivity in Na ⁺ form ^{a)}	mS cm ⁻¹	2.5 – 3.5
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C ^{b)}	%	97 – 99
uptake in H ₂ O at T = 25 °C ^{c)}	wt %	15 – 35
dimensional swelling in H ₂ O at T = 25 °C ^{d)}	%	0 – 2
hydroxyl ion transfer rate ^{e)}	µmol min ⁻¹ cm ⁻²	200 - 500
Young's modulus at 23 °C / 50 % r.h. ^{f)}	MPa	1500 – 2500
yield strength at 23 °C / 50 % r.h. ^{f)}	MPa	40 – 60
tensile strength at 23 °C / 50 % r.h. ^{f)}	MPa	50 – 80
elongation at break at 23 °C / 50 % r.h. ^{f)}	%	50 - 250
bubble point test in water at T = 25 °C	bar	> 2.5

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 P₂O₅ *in vacuo*.

d) in H⁺ form, membrane as received stored in water for 24 hrs, reference membrane as received.

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.

Contact us for any questions or sales information:

Email: sales@fuelcellstore.com

Phone: 979 703-1925

Website: www.fuelcellstore.com

