fumasep® FS-950

General

Membrane type: Perfluorinated cation-exchange membrane, non-reinforced of thickness 50 µm, with low resistance, high mechanical stability, low dimensional swelling, and high stability in acidic environment.

Application: Redox-Flow Battery, e.g. Vanadium-Redox-Flow Battery (VRB), using aqueous acidic conditions.

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 transparent (slightly opaque) foil, delivered on a backing foil (colourless rigid PET foil). Pull off carefully the membrane from the backing foil. The membrane is ready to use.

Handling

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.

Pretreatment

The membrane is delivered in H-form and dry form. The membrane does not need any pretreatment and is ready for use. Please assemble the membrane in dry form.

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

Physical and chemical data of fumasep® FS-950

fumasep®		FS-950
membrane type		cation exchange membrane
appearance / colour		transparent
backing foil		PET
reinforcement		none
counter ion		H^+ form
delivery form		Dry
thickness (dry)	µm	45 -55
weight per unit area	g cm^{-2}	8,2 – 9,2
area resistance in 0.5 M H_2SO_4 a)	Ω cm^2	< 0,1
area resistance in 0.25 M $VOSO_4$ a)	Ω cm^2	< 0,3
area resistance in 0.25 M $(VO)_2SO_4$ a)	Ω cm^2	< 0,15
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C b)	%	> 98
uptake in 2 M H_2SO_4 at T = 25 °C c)	wt %	< 8
dimensional swelling in 2 M H_2SO_4 at T = 25 °C d)	%	< 6
uptake in vanadyl sulfate at T =25°C c)	wt %	< 5
dimensional swelling in vanadyl sulfate at T =25°C d)	%	< 4
Young's modulus at 23 °C / 50 % r.h. e)	MPa	270 – 340
yield strength at 23 °C / 50 % r.h. e)	MPa	19 – 28
tensile strength at 23 °C / 50 % r.h. e)	MPa	36 – 50
elongation at break at 23 °C / 50 % r.h. e)	%	90 – 150
bubble point test in water at T = 25 °C	bar	> 3
proton transfer rate f)	µmol min^{-1} cm^{-2}	> 8000

a) measured in two-electrode cell (through-plane), T = 25 °C.
b) determined from membrane potential measurement in a concentration cell.
c) reference membrane dried over P_2O_5 *in vacuo*.
d) reference membrane as received
e) determined by stress-strain measurement at T = 25°C and 50 % r.h., according to DIN EN 527-1.
f) determined from pH potential measurement in a concentration cell 0.5 M HCl / 0.5 M NaCl @ T = 25 °C.

Tel: +86 13003038751
Fax: +86 553-7458-388
Email: contact@scimaterials.cn
www.scimaterials.cn