

fumapem[®] AM-40

General

Membrane type: Membrane is based on polybenzimidazole copolymer - non-reinforced - thickness 40 µm.

Application: High-temperature PEM fuel cell (HT-PEMFC).

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

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.

Doping with Phosphoric Acid

Recommendation: Put the membrane sample in 85 wt % H₃PO₄ at temperatures between T = 90 and 160 °C for at least 1 hour. Membranes must be covered by phosphoric acid. Membranes will expand when subject to doping process.

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

Specifications of fumapem® AM-40

fumapem®		AM-40
polymer type		PBI copolymer
reinforcement		none
backing foil (support)		none
appearance (colour)		brown, transparent
thickness	µm	40
thermal stability	°C	> 500
solubility		insoluble
inherent viscosity (in DMAc, c = 5 g/L, T = 25 °C)	dL g ⁻¹	1.5 – 2.5
Young's modulus at 23 °C / 50 % r.h. ¹⁾	MPa	2500 - 4500
yield strength at 23 °C / 50 % r.h. ¹⁾	MPa	> 150
tensile strength at 23 °C / 50 % r.h. ¹⁾	MPa	> 150
elongation at break at 23 °C / 50 % r.h. ¹⁾	%	> 30
residual solvent content	%	< 2

1) non.doped form, determined by stress-strain measurement at 25°C and 50 % r.h., according to DIN EN 527-1.

fumapem®		AM - doped form
Young' s modulus at 23°C / 50% r.h. ¹⁾	MPa	90 - 110
tensile strength at 23°C / 50% r.h. ¹⁾	MPa	10 - 13
elongation at break at 23°C / 50% r.h. ¹⁾	%	70 - 90
dimensional change Δx (MD) ¹⁾	%	16.0 - 19.0
dimensional change Δy (TD) ¹⁾	%	20.0 - 22.0
dimensional change Δz (thickness) ¹⁾	%	100 - 115
acid uptake ¹⁾	mg cm ⁻²	12 - 14
acid uptake ¹⁾	mg cm ⁻³	1500 - 1550

1) doping at T = 160 °C in 85% H₃PO₄ for 24 hrs

Please note: The data are not measured directly on the item supplied.

Contact us for any questions or sales information:

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