

# fumasep® FAPQ-330

## General

*Membrane type:* Partially fluorinated anion-exchange membrane – non reinforced – thickness 30 µm, with low resistance, high mechanical stability, low dimensional swelling, high oxidative stability, resistant to chlorine and high stability in acidic environment.

*Application:* Electrochemical processes requiring anion exchange membranes with high oxidative stability and / or resistant to chlorine. Redox-Flow Battery, e.g. Vanadium-Redox-Flow Battery (VRB), using aqueous acidic conditions.

*Operation range:* Acidic environment pH < 4, at pH > 6 the material has low ionic conductivity. The material is not stable in caustic environment (pH > 9). General temperature range is room temperature to 50 °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 transparent foil, delivered on a backing layer (colorless rigid PET foil). Carefully separate the membrane from the backing layer. The membrane is ready to use.

## Handling

Keep membrane package closed / sealed when unused. Unpack membrane only for direct use and process it 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 which may get into contact with the membrane during inspection, storage, pretreatment and mounting must be free of sharp edges or angles.

## Pretreatment

The membrane is delivered in dry form. No pretreatment is required. If additional cleaning is required rinse the membrane in either the application solution or deionized water according to the application requirement. However, membranes will expand and contract based on electrolyte content.

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

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## Technical Data Sheet - fumasep® FAPQ-330

### Physical and chemical data of fumasep® FAPQ-330

fumasep®	unit	FAPQ-330
membrane type		anion exchange membrane
appearance		transparent
backing foil		PET
reinforcement		none
counter ion		chloride (Cl <sup>-</sup> ) / methylsulfate (MeOSO <sub>3</sub> <sup>-</sup> )
delivery form		dry
thickness (dry)	µm	26 – 34
weight per unit area	mg cm <sup>-2</sup>	4.2 – 5.4
area resistance in Cl <sup>-</sup> form <sup>a)</sup>	Ω cm <sup>2</sup>	< 0.5
conductivity in Cl <sup>-</sup> form <sup>a)</sup>	mS cm <sup>-1</sup>	> 6
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C <sup>b)</sup>	%	> 90
uptake in water at T = 25 °C <sup>c)</sup>	wt %	< 30
dimensional swelling in H <sub>2</sub> O at T = 25 °C <sup>c)</sup>	%	< 12
Young's modulus at 23 °C / 50 % r.h. <sup>d)</sup>	MPa	> 800
tensile strength at 23 °C / 50 % r.h. <sup>d)</sup>	MPa	> 35
elongation at break at 23 °C / 50 % r.h. <sup>d)</sup>	%	> 200
proton transfer rate <sup>e)</sup>	nmol min <sup>-1</sup> cm <sup>-2</sup>	5.000 – 8.000
bubble point test in water at T = 25 °C	bar	> 3
Version <sup>f)</sup>	2.1	Valid from August 20 <sup>th</sup> 2020

a) in Cl<sup>-</sup> 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) membrane as received stored in water for 24 hrs, reference membrane as received

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

e) determined from pH potential measurement in a concentration cell 0.5 M HCl / 0.5 M NaCl @ T = 25 °C

f) Changes without prior notices may apply.

Note: The product is not certified for drinking water applications. The data are not measured directly on the item supplied. The data sheet does not release the customer of the necessity of a goods inwards control procedure. All information included in this data sheet is based on tests and data believed to be reliable. The data do not imply any warranty or performance guarantee. It is the user's responsibility to examine performance, suitability and durability of the product for the intended purpose. FUMATECH BWT GmbH does not assume any liability for patent infringement resulting from the use of this product. Fumasep® is a trademark of company FUMATECH BWT GmbH.

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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