

## fumasep® FAP-420-PE

### General

*Membrane type:* Partially fluorinated anion-exchange membrane - PE-reinforced - thickness 20 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 > 4 the material has low ionic conductivity. **The material is not stable in caustic environment (pH > 9).**

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 slightly opaque foil, delivered on a backing layer (colourless rigid PET foil). Peel off carefully the membrane from the backing layer.

### 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.

### Pretreatment

The membrane is delivered in dry form. The membrane does not need any pretreatment. If additional cleaning is required rinse the membrane in either the application solution or deionized water according to the application requirement.

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® FAP-420-PE

### Physical and chemical data

fumasep®		FAP-420-PE
membrane type		anion exchange membrane
appearance <sup>a)</sup>		slightly opaque
backing foil		PET
reinforcement		PE
counter ion		none
delivery form		dry
thickness	µm	18 – 24
weight per unit area	mg cm <sup>-2</sup>	2,5 – 3,8
area resistance in 0.5 M H <sub>2</sub> SO <sub>4</sub> <sup>b)</sup>	Ω cm <sup>2</sup>	0,45 – 0,65
selectivity 0.1 / 0.5 mol/kg KCl (pH 3) at T = 25 °C <sup>c)</sup>	%	> 90
proton transfer rate <sup>d)</sup>	µmol min <sup>-1</sup> cm <sup>-2</sup>	> 1500
Young's modulus at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	900 – 1800
tensile strength at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	30 – 50
elongation at break at 23 °C / 50 % r.h. <sup>e)</sup>	%	> 20
bubble point test in water at T = 25 °C	bar	> 3
pH stability range at 25 °C	pH	0 – 9

a) the color of the product may vary slightly.

b) in 0.5 M H<sub>2</sub>SO<sub>4</sub> solution @ T = 25 °C, measured in two-electrode cell (through-plane).

c) determined from membrane potential measurement in a concentration cell.

d) determined from pH potential measurement in a concentration cell 0.1 M HCl / 0.1 M NaCl @ T = 25 °C.

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

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.

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.

**Contact us for any questions or sales information:**

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