

## fumasep® FAD-55

### General

*Membrane type:* Anion-exchange membrane – non-reinforced – thickness 55 µm, with low resistance, high acid transfer rate, high mechanical stability, and high stability in acidic environment.

*Application:* Diffusion dialysis for acidic solutions.

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 in between paper layer. Carefully separate the membrane from the paper layers. The membrane is delivered in dry form.

### Handling and Storage

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.

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 additional sodium sulfite (Na<sub>2</sub>SO<sub>3</sub>) in concentration 1 – 3 wt% to avoid biological fouling.

The membrane changes dimensions based on its water content.

### Pretreatment

The membrane is delivered in bromine form and dry form. Depending on application and cell design, assembling is possible in dry (without pretreatment) or wet form. Pretreatment before assembling: put the membrane sample between stabilizing meshes / spacers (in order to avoid curling) in NaCl solution - e.g. 0.5 M NaCl solution at T = 25 °C for 72 hrs exchanging several times the solution. 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.

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**Physical and chemical data of fumasep® FAD-55**

fumasep®	unit	FAD-55
membrane type		anion exchange membrane
appearance		light-brown
backing foil		none
reinforcement		none
counter ion		bromide (Br)
delivery form		dry
thickness (dry)	µm	51 – 58
weight per unit area	mg cm <sup>-2</sup>	8.0 – 8.5
ion exchange capacity (as chloride form)	meq g <sup>-1</sup>	2.0 – 2.4
area resistance in Cl <sup>-</sup> form <sup>a)</sup>	Ω cm <sup>2</sup>	< 0.5
specific conductivity in Cl <sup>-</sup> form <sup>a)</sup>	mS cm <sup>-1</sup>	> 10.2
selectivity 0.1 / 0.5 mol/kg KCl at T = 25 °C <sup>b)</sup>	%	> 87
uptake in H <sub>2</sub> O at T = 25 °C <sup>c)</sup>	wt %	< 30
dimensional swelling in H <sub>2</sub> O at at T = 25 °C <sup>d)</sup>	%	< 6
Young's modulus at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	> 930
yield strength at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	> 23
tensile strength at 23 °C / 50 % r.h. <sup>e)</sup>	MPa	> 22
elongation at break at 23 °C / 50 % r.h. <sup>e)</sup>	%	> 20
proton transfer rate <sup>f)</sup>	nmol min <sup>-1</sup> cm <sup>-2</sup>	< 5700
bubble point test in water at T = 25 °C	bar	< 2
Version <sup>g)</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) reference membrane dried over P<sub>2</sub>O<sub>5</sub> *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

g) 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.