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Technical Data Sheet

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BPM-C

General Product Information

BPM-C is a bipolar membrane (BPM) composed of a cation exchange layer (CEL), an anion exchange layer (AEL), and a water dissociation catalyst. Under reverse bias, the membrane promotes water dissociation into H^+ and OH^- ions. BPM-C is designed for acid and base production via bipolar membrane electrodialysis and is also suitable for a range of other electrochemical applications.

Delivery Form

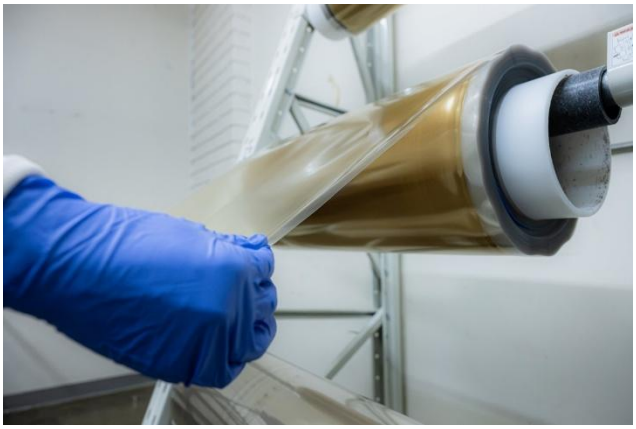
BPM-C is supplied dry on a backing film, as rolls (up to 55 cm width) or cut sheets. Sheets can also be provided in pre wetted form.

Safety, Handling, and Storage

Handle membranes with clean gloves or forceps to prevent contamination and physical damage. Do not fold, stretch, or expose membranes to sharp objects. Work with membranes in well-ventilated areas and avoid direct skin contact. For storage, keep membranes in a sealed container in a dry, ventilated environment, away from direct light. When stored properly, the membranes have a shelf life of 2 years.

Preparation and Pretreatment

To remove the membrane from the backer, apply a piece of tape to the membrane side of the notched corner and lift to remove the membrane from the backer. Once the corner lifts, gently peel until one full edge is free. Then roll the backing material under while lightly dragging it away from the membrane. Work smoothly, fast enough to avoid creases but not so fast that the membrane tears at the edge.



Prior to use, pretreat the membrane by soaking for 24 hours in 0.5 M NaCl. When soaking membranes, keep them flat and dunk them into solutions one at a time. Hold each corner down for 30 seconds once submerged to prevent curling. Do not pour solution on top of the membranes or try to wet multiple samples at the same time.

Orientation and Operation

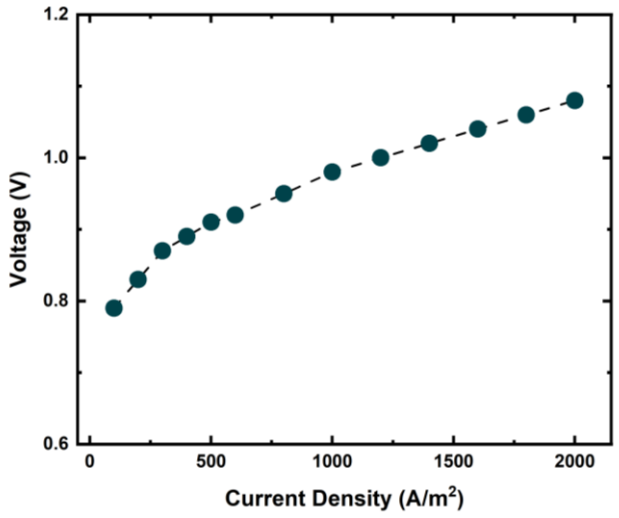
Correct orientation during stacking and operation is critical to achieving proper operation and performance. When the membrane is on the backing film, the AEL faces up. Take great care to maintain this orientation when cutting, punching, stacking, etc. Once stacked, the CEL should be facing the cathode and the AEL should be facing the anode.

Physical and Chemical Properties of BPM-C

Property	Typical Value	Unit
Membrane Type	Bipolar	
Appearance	Translucent amber sheet	
Support Material	None	
Counter-ion Form	Na^+ (CEL), HCO_3^- (AEL)	
Thickness, dry	60 to 90	µm
Maximum Temperature	40	°C
pH Range	0 to 14	
Water Dissociation Voltage[1] @ 800 A/m^2	0.95 to 1.05	V
Current Efficiency[2] @ 800 A/m^2	>95	%
Young's Modulus[3] (as soaked in 0.5 M NaCl at RT)	500	MPa
Tensile Strength[3] (as soaked in 0.5 M NaCl at RT)	30	MPa
Elongation to Break[3] (as soaked in 0.5 M NaCl at RT)	20	%

[1]Measured using a custom lab stack assembly (acid/base inlet: 0.5 M NaCl, acid/base outlet: 0.1 to 1 M HCl/NaOH).
[2]Measured using a custom lab stack assembly (acid/base inlet: 0.5 M NaCl, acid/base outlet: ~1 M HCl/NaOH).
[3]Measured with an Instron universal tester per ASTM D882-12. RT = room temperature.

BPM-C Typical Current Density vs. Voltage Performance[1]



Note: Measured properties are typical values from Captura's laboratory testing under the conditions given in the footnotes; temperature and pH values are recommended operating limits. All membranes are manufactured and QC tested to Captura's quality standards; however, these values are not guaranteed specifications, and performance in a specific application should be confirmed by testing. Captura may update this data sheet as the product develops; please contact us for the latest version or application specific data.

Contact

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