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Technical Data Sheet

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CEM-C

General Product Information

CEM-C is a non-reinforced cation exchange membrane (CEM) with low resistance, high stability and high mechanical integrity. It is designed for electrochemical acid and base production and can also be used in other electrochemical applications. It is available in thicknesses from 60 to 80 µm.

Delivery Form

CEM-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, well-ventilated environment. 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 one 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 membranes to obtain the desired ion form. For example, soak in 0.5 M NaCl for the Na^+ form. For other ion forms, soak in an appropriate salt solution under mild conditions. Membranes should be soaked for 24 hours before use. 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.

Operation

To achieve the performance shown below, operate CEM-C within the limits listed in the table of physical and chemical properties.

Physical and Chemical Properties of CEM-C

Property	Typical Value	Unit
Membrane Type	CEM	
Appearance	Translucent sheet	
Support Material	None	
Counter-ion Form	Na^+	
Thickness, dry	60	µm
Maximum Temperature	40	°C
pH Range	0 to 14	
Area Specific Resistance (ASR) for Na^+ [1]	<1.5	$\Omega \cdot cm^2$
Hydroxide Blocking Efficiency[2] @ 800 A/m^2	>90	%
Permselectivity[3]	>95	%
Young's Modulus[4] (as soaked in 0.5 M NaCl)	75	MPa
Tensile Strength[4] (as soaked in 0.5 M NaCl)	30	MPa
Elongation to Break[4] (as soaked in 0.5 M NaCl)	30	%

[1]Measured using a custom cell assembly for through-plane resistance measurement (2 M NaOH).
[2]Measured using a custom cell assembly. 1 M NaOH flows on one side of the membrane and 0.5 M NaCl on the other. The OH- concentration in the outflow of the salt channel is then measured to determine crossover.
[3]Measured in a custom cell assembly with 0.1 M and 0.5 M NaCl on either side of the membrane.
[4]Measurements taken using an Instron universal testing system, following ASTM D882-12 standard.

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

For more information, please contact
products@capturacorp.com

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