

## BRANION<sup>®</sup> Anion Exchange Membrane

Branion<sup>®</sup> membrane is an anion-exchange membrane, non-reinforced with low resistance, high mechanical stability, and high stability in pH acidic and basic environments. The polymer backbone for this membrane is based on a proprietary hydrocarbon resin. It has excellent chemical stability in alcohol and ketone solvents (such as ethanol, iso-propanol, acetone, butanol et.al.).

<b>Branion<sup>®</sup> Membranes</b>	
Typical Thickness (µm)	30, 50, 80
IEC, meq/g	2.8
Tensile Strength, MPa	>45
Elongation at Break, %	>40
Water Uptake, 80 °C in 1M KOH	~60%
Dimensional Expansion, 80 °C in 1M KOH	<10%
OH <sup>-</sup> Conductivity, 20 °C, mS cm <sup>-1</sup>	>60
OH <sup>-</sup> Conductivity, 80 °C, mS cm <sup>-1</sup>	>160
Polymer decomposition temperature, °C	>250

### Delivery and storage:

The membrane is delivered between a backing and cover foil. The membrane is in dry I<sup>-</sup> form. Long term storage in the dry form is best done in sealed original bag with minimum exposure to heat, moisture and light. Wet storage may be done in containers containing water or aqueous electrolytes (e.g. KOH).

### 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. Always wear protective gloves when handling the membrane.

### Pre-treatment protocol:

Depending on specific applications and cell designs, assembly may be possible in either the dry form (without pre-treatment), or the wet form (with pre-treatment).

For AEM water electrolysis or any other application that requires the hydroxide ion transfer across the membrane, the membrane should be converted into OH<sup>-</sup> form for optimal conductivity. To convert the membrane to OH<sup>-</sup> form, place the membrane in an aqueous solution of 1M KOH or NaOH for 1 h at room temperature. After 1 h, replace the solution with fresh 1M KOH or NaOH and allow the membrane to soak for 1 h at room temperature again. Repeat the soaking at least three times, then rinse the membrane with DI water. Minimize exposure to ambient air, as the CO<sub>2</sub> can convert the membrane into carbonate form.