

TECHNICAL REFERENCE

TOPIC: Roll (PTAR) Vs Pressed (PTAN) Ion-Exchange Membrane

When purchasing a Membrane Electrode (ME) Cell, ion-exchange membrane grade is a consideration. There are two basic choices: a common grade (standard) roll style membrane or pressed (upgrade) style. The roll type is less costly and often an economical choice for customers who perform regular maintenance on their ME Cells. Pressed style is more costly to cure and is considered an upgrade.



Both roll and pressed style membrane begin the manufacturing process the same. Namely the polyethylene cloth, binder, and ion-exchange resin are the same. The difference is found in the curing stage. The roll style cures while the sheet is being processed. Alternatively, with the pressed style process, the raw membrane is cut to the length ordered, and placed into a hydraulic press between sheet separators. The press is then rolled into an autoclave where the membrane is cured under high pressure and high temperature.



If you hold a sample of each membrane type in your hands, on the pressed style you will feel a smooth surface. Conversely, the roll style will feel uneven or perhaps even rough. You also are able to clearly make out the warp and threads of the cloth. Because of the difference in the curing step, there tends to be more variation in the quality of roll style membrane.

Roll membrane is suitable for open top ME Cells and light duty painting in hoist systems. Pressed membrane is strongly recommended for closed top ME Cells under elevated pressure in heavy duty hoist systems, or in conveyor systems where Cells are working continuously and back diffusion from excess membrane permeability can create a problem.

Ion Exchange Membrane Comparison

Membrane Type	Ion Selectivity	Acid Removal Rate, (μMol/C)	Water Permeability (ml/hr/ft ² @ 5 psi)	Removal Application	Life (years)	Area Resistance (Ohm/cm) 0.1 N NaCl	Area Resistance (Ohm/cm) 1.0 N NaCl
PTAR™	Anion	7.5 – 8.5	50	Acid	2—3 years	30	10
PTAN™	Anion	8 - 9	25	Acid	2—10 years	50	25

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