



Nanostructured Membranes for Gas and Liquid Separation

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Nanofiltration Membrane for Ultrafiltration, Gas Separation and Liquid Separation

The separation membrane has high throughput, and can be used in separation and purification of gas and/or liquid substances. Due to its high strength, the polymer nanofiltration membrane can be used as a high surface area catalyst support or as a proton exchange membrane in fuel cell applications. The membrane demonstrated good separation of ammonia from hydrogen and nitrogen. The polymer membrane is not only formed from inexpensive starting materials, but is also created in a straightforward preparation process that results in low production costs.

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Nanofiltration Membrane can be Tailored for Diverse Applications

The nanofiltration membrane is formed from tailored polymers that allow for the membrane to have finely percolating domains, narrow and highly tunable size distributions (adjustable by varying materials), and remarkable mechanical strength. The tailored polymers can be altered for a wide range of applications, including for creation of water purification membranes, proton exchange membranes, gas separation membranes, and liquid separation membranes.

FEATURES AND BENEFITS OF THE NANOFILTRATION:

- Excellent mechanical strength and high throughput
- Simple fabrication process using low cost starting materials resulting in low production costs
- Nanofiltration membrane has narrow pore size distributions
- Improved separations and throughput compared to other separation membranes
- Tunable pore sizes (5-100 nanometer)
- Polymer membrane can be easily tailored for application including for use as a water purification membrane, proton exchange membrane, gas separation membrane, liquid

separation membrane, and ultrafiltration

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