

Abstract

Ultrathin High-Performance Hollow Fiber Membranes

A process for forming ultrathin dense-layer asymmetric hollow fiber membranes with a dense layer of less than 500 Å from a binary solution system comprising a polymer and a solvent. In this process, the spinning polymeric solution has a high viscosity and exhibits chain entanglement at the spinning temperature. The solubility parameter difference between the bore fluid and the spinning dope is less than $2.5 (\text{cal/cm}^3)^{0.5}$ and the volume ratio of bore-fluid flow rate to the dope flow rate is between 0.45 to 0.75. The dope is wet-spun into hollow fibers using water as external coagulant. The ultrathin dense-layer asymmetric hollow fiber membranes are suitable for air and other gas separations.

Figure 3 is to be published.



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