

ABSTRACT

Formulation polymer dopes and development of processes for preparing asymmetric polyethersulfone hollow fiber membranes for gas separation are disclosed.

5 Polyethersulfone hollow fiber membranes which exhibit improved gas permeability and selectivity have been produced from a formulated polymer dope containing N-methyl-2-pyrrolidone (NMP) and suitable nonsolvent-additives (NSA). The nonsolvent-additives are water and
10 the mixture of ethanol and water. The dopes were tailored to be close to the point of phase separation, and have moderate polymer concentration with moderate viscosity. The hollow fibers were spun by the dry-wet phase inversion processes using water as both the internal and external
15 coagulant. The dried hollow fibers are then coated with silicone rubber, a highly permeable material and the coated hollow fiber membranes exhibit excellent permeability and selectivity compared to those of the state-of-the-art polyethersulfone membranes.

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