

105b Interfacially Polymerized Flat and Hollow Fiber Thin Film Composite Membranes Based on Microporous Polypropylene

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Interfacial polymerization (IP) is a powerful technique to fabricate thin film composite (TFC) membranes having a thickness of the selective layer of about 20 nm or more. Such TFC membranes are used mostly for reverse osmosis (RO) and less often for nanofiltration (NF). The polymers used most often as a support are polysulfone or polyethersulfone. However, for non-aqueous media applications, these supports are not stable enough. In this work, we utilized IP technique using PP flat membranes and hollow fibers (Celgard) to obtain TFC membranes. Diacyl chlorides (sebacoyl chloride or isophthaloyl dichloride) and various amines (hexanediamine, etc.) were used as reactants-monomers. Such membranes were characterized by gas/liquid permeance, SEM and ultrafiltration. Effective pore radii of the TFC membrane selective layer were estimated and found to be in range from 0.5 to 3.5 nm. Ultrafiltration performances of the membranes were compared with those of existing membranes.