



Effect of cellulose fibers on morphology and pure water permeation of PSf membranes

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ABSTRACT

Chemical and physical changes are necessary to improve the transport properties of polymeric membranes. Cellulose fiber pulp from *Pinus taeda* was processed in knives and balls mills in order to reduce the dimensions of the fibers for later application in polysulfone (PSf) membranes. By adding cellulosic fibers in PSf membranes, a composite membrane with improved morphological properties, permeate flux and good resistance to pressure was obtained. The fibers as well as the PSf and PSf/cellulose fibers membranes were morphologically characterized by scanning electron microscopy. Tests of pure water permeate flux were performed with pressure up to 20 bar. The addition of 0.2% (wt) of cellulose fibers in the formation of composite membranes resulted in the elimination of macrovoids, causing an increase in pure water flux ($50\% \pm 10$) when pressure was risen.

Keywords: Polysulfone membrane; Cellulose fiber; Composite membrane; Macrovoid

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