

Abstract Submitted
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Selective Permeating Properties of Butanol and Water through Polystyrene-*b*-polydimethylsiloxane-*b*-polystyrene Pervaporation Membranes CHAEYOUNG SHIN, ZACHARY BAER, X. CHELSEA CHEN, A. EVREN OZCAM, DOUGLAS CLARK, NITASH BALSARA, University of California, Berkeley — Polystyrene-*b*-polydimethylsiloxane-*b*-polystyrene (SDS) membranes have been studied in butanol-water binary pervaporation experiments and pervaporation experiments integrated with viable fermentation broths. Polydimethylsiloxane has been widely known to be a suitable material for separating organic chemicals from aqueous solutions, and it thus provides a continuous matrix phase in SDS membranes for permeation of small molecules. The polystyrene block provides mechanical stability to maintain the membrane structure in the pervaporation membranes. We take advantage of these features to fabricate a thin and butanol-selective SDS membrane for *in situ* product removal in fermentation.

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