

How ionic liquid changes properties of dense polydimethylsiloxane membrane?

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ABSTRACT

The polydimethylsiloxane (PDMS) membranes containing 0, 10, 20 or 30 wt % of ionic liquid (benzyl-3-butylimidazolium tetrafluoroborate) were used for separation of butan-1-ol from water. Pervaporation selectivity increased and the butan-1-ol flux through the membrane raised with the increased content of [BBIM][BF₄] in the PDMS-[BBIM][BF₄] membranes (membrane from PDMS with immobilized ionic liquid). The PDMS-[BBIM][BF₄] membrane showed high stability as well as selectivity (the separation factor raised up to 37, if 30 wt % of ionic liquid was accommodated in PDMS) during all experiments.

Keywords: Pervaporation; Ionic liquid; Fermentation; PDMS
