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2016

Dostupný z <http://www.nusl.cz/ntk/nusl-263117>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 01.10.2024

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## INFLUENCE OF IONIC LIQUID CONTENT ON TRANSPORT PROPERTIES OF DENSE POLYMERIC MEMBRANES

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Pervaporation was used for the removal of butan 1 ol from its 5 wt. % aqueous solution at which concentration *Clostridium acetobutylicum* fermentation slows down. Two types of membranes were used: a polydimethylsiloxane (PDMS) membrane containing 0, 10, 20 or 30 wt. % of ionic liquid benzyl-3-butylimidazolium tetrafluoroborate ([BBIM][BF<sub>4</sub>]) and a polyethylene (PE) membrane in which [BBIM][BF<sub>4</sub>] was sandwiched between two PE films. Differential scanning calorimetry measurements showed that PDMS and [BBIM][BF<sub>4</sub>] are not compatible and although optically homogeneous, PDMS-[BBIM][BF<sub>4</sub>] membranes contained PDMS and [BBIM][BF<sub>4</sub>] phases. Pervaporation selectivity increased and the total flux through the membrane moderately raised with the increased content of [BBIM][BF<sub>4</sub>] in the PDMS-[BBIM][BF<sub>4</sub>] membranes. Hence, the immobilization of a proper ionic liquid in the membrane could be the good method for removal the alcohol from fermentation broths by pervaporation. On the contrary, [BBIM][BF<sub>4</sub>] layer sandwiched between two PE films had no practical effect on the pervaporation properties.

**Acknowledgement:** This research was supported by Ministry of education youth and sports of the Czech Republic (Project COST LD-13018).