

Butanol partitioning of hydrophobic ionic liquids and their toxicity to solventogenic clostridia

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Various room temperature ionic liquids (RTILs) were tested for the preparation of SILM capable of butanol separation from model solutions via pervaporation. Butanol partition coefficients (K_p) and toxicity test to solventogenic clostridia were determined. In butanol model solution, partitionings were tested in tetrahexylammonium dihexylsulfosuccinate, trihexyl(tetradecyl)phosphonium dicyanamide, trihexyl(tetradecyl)phosphonium bis(trifluoromethylsulfonyl)imide, methyltrioctyl-ammonium bis(trifluoromethylsulfonyl)imide and oleyl alcohol (OA). Affinity of possible interfering compounds for butanol separation were also tested using multi-component model solution. To reduce the high viscosity of most RTILs, butanol K_p values of compatible RTIL/RTIL and RTIL/OA blends were also determined. **Acknowledgement:** This work is the outcome of Manpower Development Program for Energy and Resources supported by the Ministry of Knowledge and Economy (2008EAPHMP 170000) and of Priority Research Centers Program Through the National Research Foundation of Korea funded by the Ministry of Education, Science and Technology (2009-0093816).