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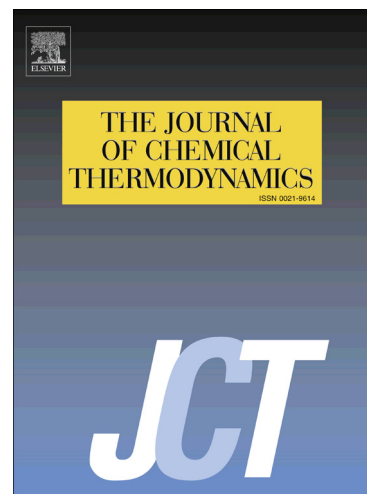
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Separation of thioglycolic acid from its aqueous solution by ionic liquids: Ionic liquids selection by the COSMO-SAC model and liquid-liquid phase equilibrium

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Abstract: To separate thioglycolic acid (TGA) from its aqueous solution by ionic liquids (ILs), sixty imidazolium-based ionic liquids (ILs) were screened by using the COSMO-SAC model based on the evaluation of the selectivity, capacity and performance index, which were derived from the activity coefficient at infinite dilution. Meanwhile, the effects of the different anions and the alkyl chain length of the cations for the separation of TGA were analysed by the σ -profile for each component. Consequently, 1-octyl-3-methyl-imidazolium trifluoromethanesulfonate ([OMIM]OTf), 1-octyl-3-methyl-imidazolium perchlorate ([OMIM]ClO₄), 1-octyl-3-methyl-imidazolium hexafluorophosphate ([OMIM]PF₆) and 1-octyl-3-methyl-imidazolium aluminum tetrachloride ([OMIM]AlCl₄), were selected to extract TGA from its aqueous solution. The results revealed that the selected ILs can extract TGA effectively from its aqueous solution. The experimental liquid-liquid

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