PRELIMINARY DEVELOPMENT OF VISCOSITY PREDICTION OF IONIC LIQUID FOR ABSORPTION REFRIGERATION SYSTEMS

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Abstract:

A simple model has been proposed to correlate viscosity of some model ionic liquid solutions with the help of two parameters. Both the parameters are physically significant. One of the parameters is the solvation number, which is defined on the basis of number of the solvent molecules that are bound to ion in some physical sense, i.e. by van der Waals forces. The substitution of alkyl chain group on the central cation is the key parameter to decide the salvation numbers. The solvation numbers can also be obtained by using independent experiments on solution. In this way, the value of the salvation number can be known a priori. With this, only one parameter is the adjustable parameter.

This preliminary modelling of the viscosity opens doors for guiding us to select some effective pairs of ionic liquids with low viscosity. Viscosity of these systems can be correlated by one parameter equation to within 1%. A large number of ionic liquids are being investigated.

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