Letters to the Editor

Comments on the paper entitled “Determination of the equilibrium constant for complex formation in a binary mixture of chloroform and triethylamine from viscosity data on the basis of the ideal associated solution model”

In a recent paper appearing in this Journal, Das reported viscosity data for binary chloroform+triethylamine mixtures. The experimental data were analyzed using the Ideal Associated Solution (IAS) model. The calculated equilibrium constant for the presumed 1:1 association complex was found to be K=2.56, which was in excellent agreement with the literature value previously determined by Helper et al. from vapour pressure measurements. Das stressed the importance of the study by stating that viscosity data can be successfully employed in the light of the IAS to estimate the equilibrium constant for complex formation, and that precise viscosity data are easily obtainable compared to vapour pressure data.

The purpose of the present communication is to point out that an important and extremely relevant paper was missing from the references cited by Das. Helper and coworkers published the viscosity data for the chloroform+triethylamine system in 1989 in a paper entitled “Viscosities of Mixtures of Chloroform+Triethylamine: Analysis in Terms of Three Components (A, B, and AB).” It was Helper and coworkers, and not Das, who first applied the IAS model to viscosity data. Several of the ideas contained in Das’s paper are also found in the much earlier paper of Helper and coworkers.

Response of the author to the comments

We are very pleased that Dr. W.E. Acree, Jr. found our article of sufficient interest to make some comments. We agree with Dr. Acree, Jr. that the omission (although inadvertently) of the paper by Schutte et al. is really a mistake. However, this does not affect the importance of the paper by Das. In that paper, Schutte et al. reported the viscosity data for the chloroform+triethylamine system at 298.15 K and they also calculated the viscosities of the mixtures using the ideal associated solution model with an equilibrium constant (K) for the 1:1 chloroform-triethylamine complex formation of 2.58 taken from the literature which was obtained from vapour-pressure measurements. They did not evaluate the K value from viscosity measurements. Das on the other hand, estimated, for the first time, the K value from the viscosity data using the same model. It is not surprising that several of the ideas (not all) contained in Das’s paper are also found in the paper of Schutte et al. since both papers deal with the same system and same model and have taken much of their ideas from the works of Helper et al., and Fenby & Helper which have been referred to in our paper. But, Das has introduced a new idea which was not contained in the paper of Schutte et al.

References


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