Conductometric study of potassium chloride in ethylene glycol + water mixtures at different temperatures

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Molar conductivity of KCl solutions in ethylene glycol + water mixtures ($w_{\text{EG}} = 0.10, 0.20, 0.30$, and 0.40) was measured at $T = (278.15, 288.15, 298.15, \text{ and } 308.15) \text{ K}$. The values of limiting molar conductivity (Λ°), association constant (K_A) and distance parameter (R) were calculated using the low concentration Chemical Model (lcCM). In this paper the values of Walden product ($\Lambda^\circ \cdot \eta$), as well as the standard thermodynamic quantities for the association reaction at $T = 298.15 \text{ K}$ were presented. Changes in these quantities as a function of changes in the composition of the mixed solvent have been discussed.

Keywords: potassium chloride, ethylene glycol + water mixtures, conductivity, thermodynamic quantities, Walden product, association distance.

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