

Apparent Molar Volumes and Apparent Molar Heat Capacities of Aqueous 1,2-Dimethoxyethane, Diethyl Ether, 1,4-Dioxane, Dimethyl Sulfoxide, and Tetrahydrofuran T/K = (278.15 to 393.15) and P = 0.35 MPa

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We determined apparent molar volumes for aqueous 1,2-dimethoxyethane, diethyl ether, 1,4-dioxane, dimethyl sulfoxide, and tetrahydrofuran at T/K = (278.15 to 368.15), and apparent molar heat capacities of the same solutions T/K = (278.15 to 393.15). All experiments were performed at the pressure 0.35 MPa, and solute molalities m/(mol/kg) were in the range m = (0.01 to 2.0) for 1,2-dimethoxyethane, m = (0.01 to 0.08) for diethyl ether, m = (0.015 to 2.1) for 1,4-dioxane, m = (0.02 to 3.0) for dimethyl sulfoxide, and m = (0.015 to 2.5) for tetrahydrofuran. A vibrating tube densimeter was used to obtain the solution densities and a fixed-cell temperature-scanning calorimeter was used to obtain the heat capacities. Results will be discussed relative to solute structure and compared with values reported in the literature.