

A B S T R A C T

In a mixed solvent consisting of tetramethylurea (TMU) and water, the ions of a dissolved electrolyte may be solvated by the molecules of either of the two solvent compounds. A qualitative estimate of the relative affinity of the ions for water and for tetramethylurea (TMU) was made on the basis of conductance measurements for solvent composition 5 mole percent, 14 mole percent and 20 mole percent. The solvation behaviour of a series of alkali metal salts in these mixtures was studied by conductance methods. All conductance data were evaluated by the procedure of Stokes law. No anomalous solvation behaviour of sodium salts in these solutions was observed. Continually increasing conductances of alkali metal iodides in these solutions indicate slow attainment of equilibrium and also decomposition of these solutions. Ionic limiting equivalent conductivities in TMU-water mixtures were obtained indirectly using tetrabutylammonium iodide as a reference electrolyte. Stokes radii were calculated. They were much larger than the crystallographic radii indicating that the salts studied were extensively solvated in the TMU-water mixtures.