Preparation of Some Novel Copper(I) Complexes and their Molar Conductances in Organic Solvents

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Z. Naturforsch. **64a,** 269 – 272 (2009); received September 3, 2008

Attempts have been made to prepare some novel copper(I) nitrate, sulfate, and perchlorate complexes. Molar conductances of these complexes have been measured in organic solvents like acetonitrile (AN), acetone (AC), methanol (MeOH), *N,N*-dimethylformamide (DMF), *N,N*-dimethylacetamide (DMA), and dimethylsulfoxide (DMSO) at 298 K. The molar conductance data have been analyzed to obtain limiting molar conductances (Λ_o) and ion association constants (K_A) of the electrolytes. The results showed that all these complexes are strong electrolytes in all organic solvents. The limiting ionic molar conductances ($\lambda^o_{\pm}$) for various ions have been calculated using Bu_4NBPh_4 as reference electrolyte. The actual radii for copper(I) complex ions are very large and different in different solvents and indicate some solvation effects in each solvent system.

Key words: Preparation; Solvation; Organic Solvents; Conductance.