THE EFFECTS OF THE PREFERENTIAL SOLVATION IN THE TRANSPORT AND THERMODYNAMICAL CHARACTERISTICS OF WATER ORGANIC SOLUTIONS OF LOW MOLECULAR BIOREGULATORS

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The effects of the preferential solvation of the singly charged ions and of the electroneutral particles in the binary solvents have been researched. An analysis of the problem of the ions' individual solvation excess determination in the water-organic solvents has been realized by using the “solvation excess” function, analogical of the relative Gibbs' surface excess in its meaning. Principles of the localization of the solvation phenomena near the ion and the preservation of the solvation equilibrium have been grounded when it moves through the region of the weakly heterogeneous solvent. The structure of the sheath of the solvent molecules of the alkali metals ions and of the hydrogen ions in the water solutions of acetone, acetamid, urea, D-glucose, izopropil alcohol, 1,4-dioxan has been determined while the former consists of the water kernel and of the enriched by the organic component external area.

A method of the analysis of solvation and of the surface excesses from the solution composition with the purpose of distinguishing of the strong intermolecular interactions of the solution components together with the effects of the hydrophobic gidityation of the ferrocen solvates and the the regularity of its change from the nature of the non-aqueous component of the water-organic solvent for the aqueous-organic solutions of the ferrocen, as the model zond particle of the large dimension has been developed. The maintenance of the redox-functions of acidity of Pleskov and Hammet type in connection with the preferential solvation of ferrocen-ferricinium system of comparison in the water-organic solvants has been determined.

The analysis of the conveying processes in the contacted three component solutions with the indefinite concentration profile in the sphere of the heterogeneous solutions has been given in the terms of the quazidiffusion potentials. The methods of research of the complex formation in the heterogeneous aqueous-salt solutions with the common anion and microadmixture of the cation ferrocen, as “pilot” potentiation ion for the ferricinium electrodes, prepered by a new way, have been elaborated. The methodics of determination of the composition and of the constants of the ions' associates formation in the aqueous-organic solutions of electrolytes have been suggested by using the EMF data of the galvanic cells without conveying.