

Effects of ionic solutes on thermodynamic properties of mixtures with a soft-core solvent.

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We consider a model mixture containing electroneutral system of charged hard spheres as solute species and a soft-core model solvent. The solvent fluid is characterized by a set of thermodynamic anomalies. We investigate if the anomalies persist in the solution and how the presence of ions influences them. Our methodological tools include Monte Carlo computer simulations in the canonical and grand canonical ensemble as well as integral equations of the theory of fluids. Our principal findings concern the dependence of pressure on temperature along isochores, the line of temperature of maximum density, pair contribution to the excess entropy on the solution density and heat capacity. The microscopic structure is characterized by the pair distribution functions of species.