

LIQUID-LIQUID EQUILIBRIUM AND PHYSICAL CHARACTERIZATION OF TRITON + WATER + SODIUM SULFATE AQUEOUS TWO PHASE SYSTEMS

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Aqueous two phase systems are formed by mixing Triton X-102 and one aqueous solution of sodium sulphate (Na_2SO_4). The equilibrium diagram for this experimental system was obtained by the cloud point method and also tie lines were determined. This present work analyses several physical properties: refractive index, density and speed of sound of the ternary system Triton X-102 + Water + Na_2SO_4 in the homogeneous zone for temperatures between 288.15 and 318.15 K and atmospheric pressure. Density (ρ) of pure components and the ternary mixtures of different compounds Triton X-102 + Water + Na_2SO_4 was measured with an Anton Paar DSA 5000 vibrating tube densimeter. Refractive index was determined using an Abbemat Automatic Refractometer. These behaviors consist in an increase in the density and refractive index when the mixture is enriched in polymer. In relation to the effect of temperature, when the temperature is high, density and refractive index decrease. On the other hand, speed of sound data for this system shows a different behavior depending the quantity of polymer: at low Triton X-102 concentration, speed of sound increases with temperatures, but at high polymer concentration, the opposite behavior was found (Figure1). This change in the influence of temperature is due to aggregation phenomenon of Triton X-102 in aqueous solution.

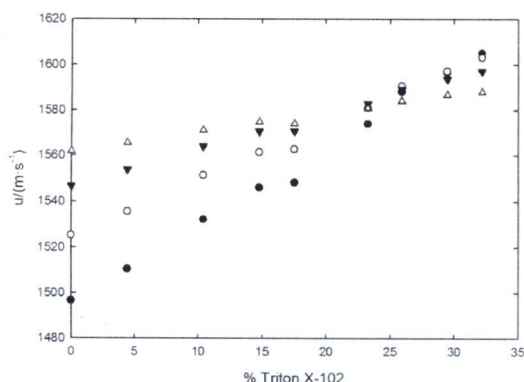


Figure 1. Speed of sound of the Triton X-102 + Water + Na_2SO_4 system at 288.15 K (●), 298.15 K (○), 308.15 K (▼), 318.15 K (△). 2.52% Na_2SO_4 .