



## Studies of Thermo Acoustical Properties of Polyoxyethylene (10) oleyl ether in Presence of Polyvinylpyrrolidone at Different Temperatures by Ultrasound Measurement

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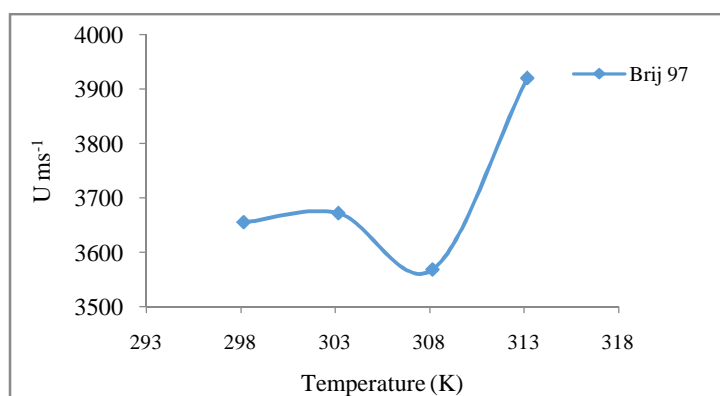
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### ABSTRACT

Here we have investigated the effect of Polyvinylpyrrolidone (PVP) on thermo acoustical properties of Polyoxyethylene(10)oleyl ether (Brij-97) by ultrasound velocity measurement at different temperatures. In this paper, we examine the density ( $\rho$ ), ultrasonic velocity ( $U$ ), adiabatic compressibility ( $\beta_{ad}$ ), molar volume ( $V_m$ ), intermolecular free length ( $L_f$ ), acoustic impedance ( $Z$ ) and surface tension ( $\gamma$ ) of aqueous solution of Brij-97 (0.029%) and in the presence of 0.005-0.05% w/v PVP at different temperatures (298.15, 303.15, 308.15 and 313.15K) and atmospheric pressure. The ultrasonic velocity, acoustic impedance and surface tension were increased up to 0.02% w/v PVP and decreases with further increase in concentration of PVP, while the adiabatic compressibility and intermolecular free length is found to be decreased with increase in the concentration PVP up to 0.02% w/v and then increases with further increase in concentration of PVP for all the temperatures studied

### Graphical Abstract



Ultrasonic velocities of 0.029% w/v Brij-97 at different temperatures.

**Keywords:** Nonionic surfactant, Polymer, Acoustical properties, Ultrasound velocity.