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(57) Abstract :

The present invention relates to a comprehensive exploration of the properties of Polyvinyl Alcohol (PVA) through the measurement of density, viscosity, and ultrasonic velocity at various temperatures and concentrations. Solid PVA with an approximate molecular weight of 140,000 was employed to prepare solutions by mixing known PVA volumes with fixed water volumes. Concentrations ranging from 0.3% to 1.0% (v/v) were examined. Acoustical parameters, including adiabatic compressibility and acoustic impedance, were calculated across different concentrations (ranging from 1.0% to 0.3%) and temperatures (ranging from 30°C to 65°C) at a frequency of 1 MHz using a variable path ultrasonic interferometer. The investigation offers insights into the effects of temperature and concentration on PVA's physical properties.

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