Density ($\rho$) and ultrasonic velocity ($u$) values of L-alanine- / L-proline- / L-valine- / L-leucine-2 M aqueous KCl / 2 M aqueous KNO$_3$ systems have been measured for several molal concentrations of amino acids at different temperatures: 298.15, 303.15, 308.15, 313.15, 318.15 and 323.15 K. The $\rho$ and $u$ data have been used to calculate the values of isothermal compressibility ($\kappa_T$), internal pressure ($P_i$), solubility parameter ($d$), pseudo-gruneisen parameter ($G$) at different temperatures. The trends of variations of $\kappa_T$, $P_i$, $d$ and $G$ with successive increase in amino acid concentration and temperature have been discussed in terms of solute-solute and solute-solvent interactions operative in the systems.