CHAPTER 7

RESUME

An attempt has been made to investigate the physical properties such as ultrasonic adiabatic compressibility, viscosity, viscous relaxation time classical absorption coefficient of mixed polymer solutions. The compatibility of mixed polymer solutions has been explained. The measurements were taken at frequencies 2, 5, 6 and 7 MHz and at temperatures 298 K, 303 K, 308 K, 313 K and 318 K. Dielectric constant measurements have been done at 1 KHz, and 303 K, 308 K and 313 K. From the study physical properties of solutions intermolecular interactions between polymers have been explained.

Chapter I contains the general review of the study of physical properties such as ultrasonic velocity, viscosity, adiabatic compressibility, classical absorption coefficient, compatibility and dielectric measurement. Effect of molecular interaction, on physical properties have been mentioned in this chapter. Concerning references have been given at the end of the chapter.

The literature review of the same properties has been incorporated in chapter 2. The existing literature mostly contains solute solvent interaction in so far as polymers are concerned. Study of interaction of two solutes in the single solvent appear to be very scanty. The aim of the present work, choice of solvent, choice of polymer and systems employed in the present study have been mentioned in this chapter with relevant references appearing at the end of the this chapter.

Chapter 3 includes theoretical consideration on related parameters on of ultrasonic velocity, compatibility, viscosity and dielectric constant and respective references.

Chapter 4 contains various techniques of measurements of ultrasonic velocity, viscosity, density and dielectric constant employed for measurements of these quantities and their relative merits. The techniques used in the present measurements have also been included here. Due references are also given.
Chapter 5 contains observation tables containing values of $\rho$, $\eta$, $U$, $\beta$, $\tau$, and $\alpha/f^2$ at different temperatures and frequencies. It also contains values of dielectric constant and excess dielectric constant at 1KHz. The graphs of $U$, $\eta$, $\beta$, $\tau$, and $\alpha/f^2$, $\Delta\epsilon$ against concentration are also included in this chapter.

The discussion of results are incorporated in chapter 6. The molecular interactions have been explained between polymers in systems under consideration. The effect of donor acceptor capabilities of the components giving rise to coordinate covalent bonding, dipole dipole interactions, dipole induced dipole interactions, compatibility of polymer solutions, frequency dispersion of ultrasonic velocity, effect of viscosity on interactions, effect of molecular mass of the complex molecules species on relaxation time and classical absorption coefficient, effect of interaction on dielectric, constant and extent of interaction, through excess dielectric constants have been discussed. The present finding have been compared with the one finding in the literature.