Abstract

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Ultrasonic velocity and elastic moduli of heavy metal tellurite glasses

Longitudinal and transverse ultrasonic waves velocities in lead tungsten tellurite glasses have been measured using the pulse-echo method at 5 MHz frequency at room temperature (300 K). The elastic properties longitudinal modulus, shear modulus, Young's modulus, bulk modulus, Poisson's ratio together with the microhardness, softening temperature, Debye temperature are found to be rather sensitive to the glass composition. Information about the structure of the glass can be deduced after calculating the average stretching force constant; the average ring size. A comparison between the experimental elastic moduli data obtained in this study; those calculated theoretically by other models has been discussed.