

**STRUCTURAL AND ELASTIC PROPERTIES OF
 $x\text{CaO}-10\text{PbO}-(90-x)\text{B}_2\text{O}_3$ GLASS SYSTEM**

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ABSTRACT

STRUCTURAL AND ELASTIC PROPERTIES OF XCAO-10PBO- (90-X)B₂O₃ GLASS SYSTEM

This study investigate the structural and elastic properties glass system of $x\text{CaO}-10\text{PbO}-(90-x)\text{B}_2\text{O}_3$ with composition ($x = 20, 25, 30, 35$ and 40) by using melt-quenching method. The structural of the glass system is determined by X-ray diffraction (XRD) and Fourier transform infrared (FTIR) spectroscopy. FTIR analysis showed the functional group of BOB, BO₄ and BO₃ in specific range. Meanwhile, for elastic properties are determined by using pulse-echo method which also known as ultrasonic measurement. Ultrasonic measurement used in order to obtain longitudinal and shear velocities for each glass samples. By adding CaO content into borate-lead glass system, it will increase the elastic moduli (K_e and C_L) for $x \leq 35$ mol% and later decreasing at $x > 35$ mol%.