

The Effect of CaO from Cassava Rhizome to Structural and Elastic Properties of Strontium-borate Glass Systems

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The glass system of $x\text{CaO} - (50-x)\text{SrO} - 50\text{B}_2\text{O}_3$ ($x = 0, 10, 20, 30, 40$ and 50 wt.%) were prepared using the conventional melt quenching technique. In this work, the calcium oxide was acquired from Cassava Rhizome. Elastic properties of the glasses were determined at room temperature by measuring ultrasonic velocities (both longitudinal and transverse) at a frequency of 4 MHz. The density of glass samples were measured by Archimedes' principle using n-hexane as the buoyant liquid. From these obtained velocities and densities, Elastic moduli were calculated. All of these parameters were depend upon the CaO concentration. The structural properties of the glasses sample were studied by using Fourier Transform Infrared spectroscopy (FTIR). The obtained results supported our discussion of the formation bridging oxygen (BO) and non-bridging oxygen (NBO).

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