

**STUDY ON PHYSICAL AND STRUCTURAL PROPERTIES OF
NEODYMIUM DOPED LITHIUM BORO-TELLURITE GLASSES**

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ABSTRACT

STUDY ON PHYSICAL AND STRUCTURAL PROPERTIES OF NEODYMIUM DOPED LITHIUM BORO-TELLURITE GLASSES

Glasses with chemical composition of $(70.0)\text{B}_2\text{O}_3-(5.0)\text{TeO}_2-(25.0-x)\text{Li}_2\text{CO}_3-x\text{Nd}_2\text{O}$ where $x = 0, 0.2, 0.4, 0.6, 0.8$ and 1.0 mol% are prepared by melt quenching technique. By varying the proportion of Li_2CO_3 and Nd_2O_3 , the effect of this chemical to the lithium boro-tellurite can be investigate in term of physical properties such as density, molar volume and oxygen packing density (OPD). The structural properties were measured by using X-ray Diffraction (XRD) technique and Fourier Transform Infrared (FTIR) spectroscopy. In this work, generally density and oxygen packing density are found increase while molar volume is decrease as the concentration of neodymium oxide is increases. On the other hand, the amorphous nature was proved by XRD technique and there are presence of Nd-O, Te-O, B-O and OH functional group of glass in FTIR spectra.

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