

Effect of neodymium concentration on structural and optical properties of tellurite based glass system

ABSTRACT

Neodymium doped zinc borotellurite glass system were fabricated by using conventional melt-quenching method. The structural properties of the glass system were characterized by using X-ray Diffraction (XRD) method and Fourier Transform analysis (FTIR). The amorphous nature of the glass system was confirmed by using x-ray diffraction method. The transmission band of TeO₃ structural units which indicate the existence of non-bridging oxygen was shown by FTIR analysis. The optical properties of the glass system were determined by using UV-Vis spectrophotometer. Several bands were shown in the absorption spectra which indicate the characteristic of neodymium ions. The obtained values of indirect optical band gap, E_{opt} lies in the range of 3.151 eV and 3.184 eV.

Keyword: Fourier transform infrared spectroscopy (FTIR); Optical band gap; Optical materials