Optical properties of ternary tellurite glasses.

ABSTRACT

Test samples of ternary glass tellurite [(TeO2)65(B2O3)35]y[Ag2O]y with y = 10, 15, 20, 25, 30 mol % have been fabricated and their physical and optical properties were investigated. The optical absorption was recorded at room temperature in the wavelength range from 200 to 800 nm. From the absorption edge data, the value of the optical band gap Eopt and the Urbach energy ΔE were evaluated. The value of Eopt lies between 2.15 eV and 1.85 eV for the indirect transition and for direct transition the values vary from 2.77 eV to 2.35 eV. From the experimental results, values of the optical band gap and Urbach energy were calculated. They were found to be dependent on the glass composition.

Keyword: Tellurite glasses; Optical band gap; Urbach energy; Density.