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The Influence of Alkali Oxide content on the Properties of Sodium Borosilicate glasses

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ABSTRACT

Glasses in the system xNa_2O-$10B_2O_3$-(90-x) SiO_2 (where x= 0, 10, 20, 30…) were prepared by conventional melt quench technique and studied their densities, UV-Visible spectra, IR spectra, transition temperature, electrical conductivity and chemical durability. The XRD patterns confirm the glassy nature of the sample. As increasing the Na_2O% the UV cut off is shift towards higher wavelength. The electrical conductivity increases up to 30% of Na_2O beyond 30% conductivity decreases it suggests that the mobility of Na^+ is restricted by increasing the concentration of Na_2O. The investigated glass sample improved the chemical durability of the investigated glass in acidic as well as in alkaline medium.

Keywords: Borosilicate glasses, Electrical conductance, Optical properties, Chemical durability Alkali oxide.
