

Polymer Chemistry

30th International Conference on

&

Materials Chemistry & Science

August 27-28, 2018 | Toronto, Canada

Study of physical, structural and optical properties of MnO containing lithium borosilicate glasses

Amardeep kaur, Ashok Kumar and Supreet Pal Singh
Punjabi University, India

The glasses with composition $x\text{MnO}-(20-x)\text{Li}_2\text{O}-50\text{B}_2\text{O}_3-30\text{SiO}_2$ (where $x = 4, 6, 8$ and 10 mol %) were prepared via melt and quench technique. Structural and optical properties of the samples were investigated using X-ray diffraction (XRD) and UV-visible spectroscopy. Various physical parameters viz. density, molar volume, ionic concentration and inter-nuclear distance have been calculated. The density of the samples increases with increasing MnO content due to the higher molar mass of MnO as compared to Li_2O whereas the molar volume decreases. The ionic concentration increases with the increasing content of MnO while the inter-nuclear distance decreases, which results in more compact boron network in borosilicate glasses. The XRD patterns confirm the amorphous nature of the glasses. The optical band gap of the glass samples decreases with increasing content of MnO whereas the Urbach energy increases. Urbach energy is highest for maximum concentration of MnO, which indicates the maximum disorder in that glass.

Biography

Research Scholar at Punjabi University and research area is synthesis and characterization of transition metal doped borosilicate glasses for radiation dosimetry.

amardeep4685@gmail.com

Notes: