

Hyperfine Interactions at Lanthanide Sites in Europium Doped Oxide Glasses

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A series of europium doped $\text{Na}_2\text{O-B}_2\text{O}_3\text{-SiO}_2$, PbO-GeO_2 and ZnO-TeO_2 glasses was investigated by means of ^{151}Eu Mössbauer spectroscopy. The distortion of the Eu sites has been evaluated in the $\text{Na}_2\text{O-B}_2\text{O}_3\text{-SiO}_2$ glasses by means of the quadrupolar interaction parameter and the asymmetry parameter; the disorder has been estimated by the line width. The occupancy of the sites in the borosilicate glasses is discussed. The correlation of the isomer shift with the optical basicity of the glass is discussed in terms of the degree of covalence of the Eu-O bond.

Key words: Europium; Oxide Glasses; Borosilicates; Germanates; ^{151}Eu Mössbauer Spectroscopy.