

Abstract

Magnetic and electrical properties of fluorophosphates glasses of compositions $(90-x)\text{NaPO}_3 - x\text{MnF}_2 - 10\text{ZnF}_2$ where $(0 \leq x \leq 40 \text{ mol } \%)$ have been reported. Also, an electrical study was consecrated by measurements ionic conductivity and electrical modulus $M^* \text{ complex}$ and their evolution versus frequency and temperature. Dielectric measurements [graph $M'' = f(M')$], show the appearance of a heterogeneous phase in the volume of glass for high concentrations in MnF_2 . As to magnetic study, the magnetic susceptibility appears to follow Curie-Weiss relation ($\chi = C/(T - \theta_p)$) for temperatures above $\sim 20 \text{ K}$ with negative paramagnetic Curie temperature. This corresponds to an antiferromagnetic behavior that increases with manganese concentration, suggesting the existence of clusters. This is consistent with presence of polyhedra $(\text{MnF}_6^{4-})_n$ interconnected by octahedra which add to tetrahedral fluorophosphates