STRUCTURAL PROPERTIES OF GLASSES NaPO3 - Sb2O3

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Heavy metal oxide glasses, especially those based on antimony oxide, have been wildly studied because of their low phonon energy, high refractive index and large optical transmission range. Glasses were synthesized in vitreous carbon crucibles according to the composition rule: (100 -x)NaPO3 - xSb2O3. Classical processing includes mixing and melting starting materials at nitrogen atmosphere, followed by casting and annealing. Characteristics temperatures have been measured using differential thermal analysis (DSC). The physical and structural properties of these glasses were explored as a function of the Sb2O3 concentration by FTIR, Raman scattering and 31P MAS-NMR. Optical properties have been investigated by m-line and Z-scan analysis to obtain linear and nonlinear indexes.

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