ETUDE DES PROPRIETES MECANIQUES DES VERRESOXYGENES ET OXYHALOGENES

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Soutenue en: 2012

Abstract : The rapid development of photonics technology requires increasingly efficient materials,suitable for photonic devices such as amplifiers and materials for high power lasers. Theoptical amplification based on the principle of the laser effect can be obtained in crystalline orglassy matrix through radiative emission of rare earth ions.The glasses are among the interesting matrices for transparency in a wide optical region andtheir ability to receive large amounts of rare earth ions. For this purpose, a new family ofglasses stable oxide and halide in the ternary systems Sb_2O_3-$PbCl_2$-As_2O_3 and Sb_2O_3-$PbCl_2$-AgCl has been developed. Several characterizations were made on two ternary systems. Allproperties changes almost linearly with the variation of the composition. The results obtainedare similar to those of other work. It appears that the structure of these glasses is more openwhere the low values of mechanical properties. Because of these glasses good candidates innonlinear optics. Differential scanning calorimetry has shown that certain compositions do notexhibit crystallization peaks where their high thermal stability.In this work, we also find the study of the devitrification of glasses in the ternary systemoxyhalogenated Sb_2O_3-$PbCl_2$-AgCl has been studied by differential scanning calorimetry.A single exothermic peak of recrystallization is observed beyond the glass transitiontemperature, which allows the application of relations Mehl-Avrami-Kolmogorov-Johnson.The use of non-isothermal procedures for determining the values of the Avrami exponent nand activation energy E.The mechanism of crystal decay is discussed in relation to the observations in scanningelectron microscopy

Keywords : transparency, ternary systems, glasses, Differential scanning calorimetry, Thermal stability