Viscosity of TeO2-based glasses

Nagia S. Tagiara*[1], Daniel R. Neuville[2], Apostolos Kyritsis[3], and Efstratios I. Kamitsos[1]

[1]Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Athens, Greece – Greece

[2]Géomatériaux, CNRS-IPGP – Centre national de la recherche scientifique - CNRS (France) – Paris Sorbonne Cité, 75005 Paris, France

[3]National Technical University of Athens – Zografou Campus, 157 80 Athens, Greece

Abstract

Glasses based on tellurium oxide are of particular interest due mainly to their relatively low melting temperature, high refractive index and high third-order non-linear susceptibility [1]. Because of their exceptional properties tellurite glasses are promising materials for a broad range of technological applications. To our knowledge, there are limited studies on the viscosity of tellurite glasses. In this work, we present results of a viscosity study of binary and ternary TeO2-based glasses including the systems: ZnO-TeO2 as a function of ZnO content and R2/3O-ZnO-TeO2 (R=B, Al) where ZnO is replaced by B2O3 or Al2O3. All glasses were prepared by melting in Pt crucibles, the structure of glasses was characterized by Raman and infrared spectroscopy and was correlated with the viscosity-temperature behavior of glasses.

R.A.H. El-Mallawany, in Tellurite Glasses Handbook, Physical Properties and Data (CRC Press LLC, Boca Raton, Florida, 2002).

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Keywords: Tellurite glasses, viscosity

*Speaker