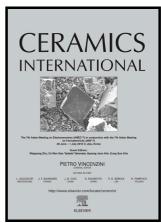
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Effects of Ag additive on structure and crystallization behaviors of

 $As_2(Se_{15}Te_{85})_3$ glasses

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Abstract

In this work, glass samples of compositions of As_{40-0.4x}(Se₁₅Te₈₅)_{60-0.6x}Ag_x (x=0, 10,

16.7, 20, 25 at. %) are prepared. The structural transformations of glasses are deduced

from the variations of glass densities and Raman spectra with the addition of Ag.

Differential scanning calorimetry is applied to determine the characteristic

temperatures, evaluate the thermal stabilities against crystallization, and investigate

the crystallization kinetics under non-isothermal conditions. Thermal treatment of the

as-prepared glass samples is carried out at both low (190 °C) and high (260 °C)

crystallization temperatures. X-ray diffraction patterns demonstrate that crystals

precipitated from glass matrices are pure As-Te(Se) phases free of Ag. The results are

consistent with the Raman spectra. The relevant mechanism can be understood based

on the dual chemical role of the Ag addition on the variations of glass network.

Keywords

As-Se-Te glasses; Ag additive; crystallization behaviors

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