

3.091 OCW Scholar

Self-Assessment

Amorphous Materials

Supplemental Exam Problems for Study

Problem #5

Composition A: 25% CaO – 75% GeO₂; Composition B: 5% CaO – 95% GeO₂

- (a) Two glass-forming melts, A and B with compositions as specified above, are each cooled from their molten state to room temperature at identical cooling rates. Identify which melt has the higher value of glass transition temperature (T_g) and justify your choice by referring to what happens at the molecular level.

- (b) With reference to what happens at the molecular level, explain how surface-strengthening of a glass of composition A can be achieved by a thermal treatment known as tempering.

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