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Isoconversion Analysis of the Glass Transition PRASHANTH BADRINARAYANAN, WEI ZHENG, SINDEE SIMON, Texas Tech University — At temperatures below their glass transition temperatures (T_g s), glass forming materials deviate from equilibrium density and form a glass. The kinetic nature of the glass transition process is manifested in the cooling rate dependence of the glass transition temperature and by structural relaxation below T_g . Various facets of the glass transition kinetics have been well described by phenomenological models of the glass transition, such as the TNM and KAHR model. An important yet frequently questioned assumption in these models is that the apparent activation energy, which describes the temperature dependence of the relaxation time, does not vary during the glass transition process. Some recent reports suggest that the activation energy varies significantly during the glass transition process. In this work we apply an isoconversion analysis to data in the glass transition region which was obtained on cooling from capillary dilatometry and differential scanning calorimetry (DSC) in order to determine whether the apparent activation energy increases as the glassy state is approached.

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